A WINDOW OPEN ON THE WORLD

The UNESCO Courier

UNITED NATIONS EDUCATIONAL SCIENTIFIC AND CULTURAL ORGANIZATION

MAY
1955
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In this issue

SOUTH OF THE BORDER
in new perspective

DON QUIXOTE AT THE MIKE

INDIAN EXODUS
from the Andes

STORY IN CLAY
OF PERU'S PAST

UNESCO AT WORK IN LATIN AMERICA

MEXICO. Regional Fundamental Education Centre for Latin America established at Patzcuaro. Over 160 trainees already graduated with students from Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay, Venezuela. Scientific and technical documentation centre created in Mexico City. Feeds science data to universities, industries.

GUATEMALA. Development of trade school system. See page 16.

EL SALVADOR. Two technical assistance missions completed: education for better living in the San Andres Valley; improvement of primary schools (village life) and secondary schools (vocational guidance and job training).

NICARAGUA. Technical assistance in teacher training and fundamental education.

COSTA RICA. Developing a Pan-American Highway boom town. See page 24.

CUBA. HQ (Havana) for Unesco's Regional Office in the Western Hemisphere.

HAITI. Marbial Valley pilot-project in education.

VENEZUELA. Technical assistance in training statisticians.

COLOMBIA. Model public library at Medellin. 200,000 people go to school—by radio. See page 18.

ECUADOR. Centre of Ex-Unesco Fellowship Holders actively campaigning for better children's reading material. Technical assistance in training mathematics, physics, chemistry and biology teachers. Andean Highlands Project. See page 4.

PERU. Technical assistance in science teaching; development of "60-cent laboratory". Andean Highlands Project. See page 4.

BOLIVIA. Experiment in primary schooling, La Paz. Youngsters taught to read and write in 50 days. Andean Highlands Project. See page 4.

BRAZIL. Technical aid in nuclear physics (cosmic rays), agricultural chemistry, electronics, geology, cellulose production, technology in Rio de Janeiro. Survey of mineral resources of the "Dry Polygon" (See Page 10). Conference on Public Libraries in Latin America in October 1951 at Sao Paulo called by Organization of American States and Unesco.

URUGUAY. Unesco mission to set up scientific and technical documentation centre at Montevideo now completed. Centre operating under Uruguayan direction. Headquarters for Unesco's Regional Science Co-operation Office for Latin America.

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THE COVER : Almost in the centre of the Bolivian Altiplano lies Lake Poopo, 12,140 feet above sea level. Here a train is crossing a causeway bound for Patino tin mines now nationalized by Bolivian government. In this region of the Andes with its impressive spectacle of gigantic peaks capped with snow all year round, an ambitious programme is under way to resettle many unemployed Indian mine workers in more fertile zones. (Photo Almsay).

THE AWAKENING CONTINENT

THE average traveller leaves for Latin America convinced by what he has read and heard that he will find one-half of the population dancing the samba, the rumba, the bamboco or whatever the local variation may be while the other half sleeps under trees.

The average traveller is always disappointed.

A new wind is blowing through Latin America—through a continent of many contrasts, with its mountain-tops under perpetual snow and sweating tropical lowlands, with its great modern metropolises and its hinterland villages, with its famous writers, poets and thinkers and its more than 70,000,000 illiterates.

The phrase *Latin America* alone is a handy one, but it is misleading. It tends to make an outsider place, let us say, Colombia and Mexico within the same pigeonholes; and that is as false as saying that Frenchmen and Yugoslavs are exactly alike because they are continental Europeans. Latin America's common language (with the exception of Brazil) and common historical heritage are a tremendous advantage today in modernizing a continent. But national differences remain great; in the past, they were so great that it was quite normal for a country to be in closer relations with Europe or North America than with its own neighbours.

Our average traveller is bound to return home convinced that Latin America stands poised on the brink of an economic revolution. The vagaries of world markets have taken the easy profit out of one-crop economies. World War II shut Latin America off from its traditional sources of everything from type-writers to vacuum cleaners. Many a country was forced to choose between building its own industries or do without—and chose to build. In the Brazil of fifty years ago, the rubber industry meant a naked Indian tapping a tree somewhere in the Amazon for crude rubber to be shipped immediately abroad. Modern Brazil makes 1,500,000 tyres a year. Colombia is now the fourth Latin American country to produce its own iron and steel and it is producing it on a site where ten years ago *campesinos* ploughed the soil with oxen.

Latin America cannot be judged by the book standards of "economic underdevelopment." The statisticians can prove that production and standards of living are low and must be raised, but their statistics cannot show one salient fact: Latin America has, *on its own soil,* sizeable islands of modern economies. The situation in many of these countries is that of a colony, but with the "mother country" also placed within the same borders.

In such a situation, technical assistance rendered by the United Nations can make a tremendous impact on Latin America. First there is the "blast furnace" of economic potential which is merely waiting to be tapped. Secondly, the "international expert" finds himself at home the moment he steps off his airliner. A Mexican working in South America or a Peruvian in Central America speaks the same language and in many respects thinks the same way as the people he is working with. There is the barrier of national differences, true, but when it is overcome by men of goodwill the results are often dazzling.

In Latin America, the United Nations and its agencies have been able to undertake a wide range of missions (conducted in many places by Latin Americans) to attack the immediate and profound problems that hamper economic development. Their work ranges from research in nuclear physics to teaching adults to read and write. After a period of five years, its fruits are worth a close examination.

In this issue, the UNESCO COURIER presents a few examples of some of the results achieved. There are scores of others, all of them exciting and fraught with significance. The following pages are an attempt to help readers get a glimpse of an old continent in new perspective.

JOSE DE BENITO.

'LAND HUNGER'
ON THE TOP OF THE ANDES

by Alfred Metraux

THE fate of some 7,000,000 Andean Indians who live at altitudes which soon leave other men breathless and dizzy, is today the deep concern of three Latin American republics and the United Nations. At stake is the future economic development of Bolivia, Peru and Ecuador.

The Indian problem facing these three countries is in many ways identical since the region inhabited by the Quechuas and the Aymaras forms a geographical, economic, social and cultural unity. For this reason an effort to improve the living conditions of the Indians is being made on an international basis.

For the past three years a vast international project of the United Nations has been under way to help Bolivia, Peru and Ecuador meet some of the most urgent problems facing the Indians living in the Altiplano (high plateau). The Andean Highlands Project—one of the biggest in the U.N.'s world programme of technical assistance—has been entrusted to the International Labour Organization with UNESCO, the Food and Agriculture Organization and the World Health Organization co-operating.

From the beginning it was obvious that the many problems of the entire Indian population could not be attacked at the same time. The problems had to be sifted out and given priorities. Investigation showed that over-population, and as a result a serious shortage of land, was the main cause of the stagnation of Indian life.

The Bolivian Government for example has been carrying out an important land reform programme in recent years. An answer had to be found to the question posed by thousands of Indians who could not be granted land and who did not have the skills to earn their living in industry. Bolivia looked eastward to the immense sub-tropical plains around Santa Cruz. A few years ago these rich plains were almost inaccessible, but Santa Cruz is now linked to Cochabamba (6,000 feet up in the Andes) by a new road. This road may well open new horizons to Bolivia's economy —once people are brought into the almost deserted plains.

Bolivia's President Victor Paz Estenssoro has announced a plan for settling this new untapped territory with Indians from the highlands, miners who can no longer find work in the tin mines, and even soldiers. By settling soldiers on state land Bolivia is following the example of ancient Rome.

To carry out a plan of such scope, the difficulties of which can easily be imagined, Bolivia needed outside help. Reception centres for new arrivals, schools and dispensaries have to be set up. The U.N. has been asked to supply technicians for such tasks and equally important, to help train the technicians of the future.

At Pillapi, in Bolivia, a large estate has been transformed into an experimental agricultural centre. Co-operatives are being organized there to enable Indians to purchase livestock, seeds and farm tools. A public health service has been set up—and the idea that Indians would oppose modern medical treatment has proved completely false. Schools have been opened on the farms and a permanent fundamental education centre is to be built.

The efforts of the Peruvian Government to open up the rich subtropical Tambopata Valley on the eastern flanks of the Andes are aimed at the same goal—settlement of the Andean Indian to give him a fair chance. In the following article, Dr. Alfred Metraux, Unesco anthropologist who headed the first mission to this region describes some of the problems and explains how the opening up of new lands could transform the Indian's existence.

A DEAD WORLD of rocks, glaciers and sand seems to move by under the eyes of airline passengers flying over the great chain of the Andes. But this seemingly dead and desolate land is inhabited by men whose ancestors resisted the overwhelming forces of nature for thousands of years. Here they even built a great civilization. Today, however. the men of the mountains are looking for a new destiny. *(Photos Almasy and ILO)*

THE Indians who live in the high Andes are a marked people. Centuries of slavery, misery and humiliation have crushed them—and even their once famous pride is gone. Today, their problems are countless and any improvement in their conditions seems almost hopeless—unless a total transformation is brought about in their way of life.

One of the greatest problems facing the Indians today is the shortage of fertile land and as a result the migration of many families to the Eastern (Amazonian) side of the Andes.

After the slaughter carried out by the Spanish Conquistadors, the Indian population, which had diminished to an alarming degree, became stable; then, during the 19th Century it began to rise rapidly. This fact amazes anyone who has had any experience of Indian living conditions. The Andean Indians are reputed to be among the most unhygienic peoples on earth; unfortunately, this is no great exaggeration. The mere inventory of the diseases afflicting them is enough to cause a shudder. Yet not even the filth and a high infant mortality rate has prevented their population growth from keeping pace with that of other groups in Latin America.

Demographic pressure however has made "land-hunger" all the more acute. They are hemmed into lands which the white man left them and their plots have been so frequently divided and sub-divided by inheritances that Indian farms are now measured in so many "furrows"

On lands farmed for thousands of years and given no rest, yields are rarely good. To make matters worse, farming is always a risky business at high *(Continued on next page.)*

'LAND HUNGER' *(Continued)*

altitudes. A sleet storm or one night of frost can wipe out a harvest. The misery of the Indians would be unbearable if they did not have an "escape route"—migration.

Last year, a sudden night frost destroyed all the crops sown on the banks of Lake Titicaca (the highest navigable lake in the world, 12,500 feet above sea level). The following morning, the Indians told us that many of them were leaving for the coast. What else could they do?

But even when the Indian leaves his home in the mountains he is not much better off. He heads for the cities on the coast, hoping to find a job as a labourer or a porter, or any other unskilled work. Most of the Indians speak no Spanish and all of them are illiterate. They make their long trek to the west on foot through one of the most desolate lands in the world. The lucky ones are those who have enough money to pay for transport and cram themselves and their families into open trucks.

To the Indian, the city is a new and hostile environment where he has to look haphazardly for work. For days and sometimes weeks he wanders through the streets, sleeping on doorsteps and living on *chuno* (dehydrated potatoes) or the grain which he carries in a sack. Even in Lima, the Peruvian capital, thousands of Indians cluster around open-air kitchens, chewing coca leaves to stave off hunger, while they wait, dejected and impassive, until someone hires them for a labouring job.

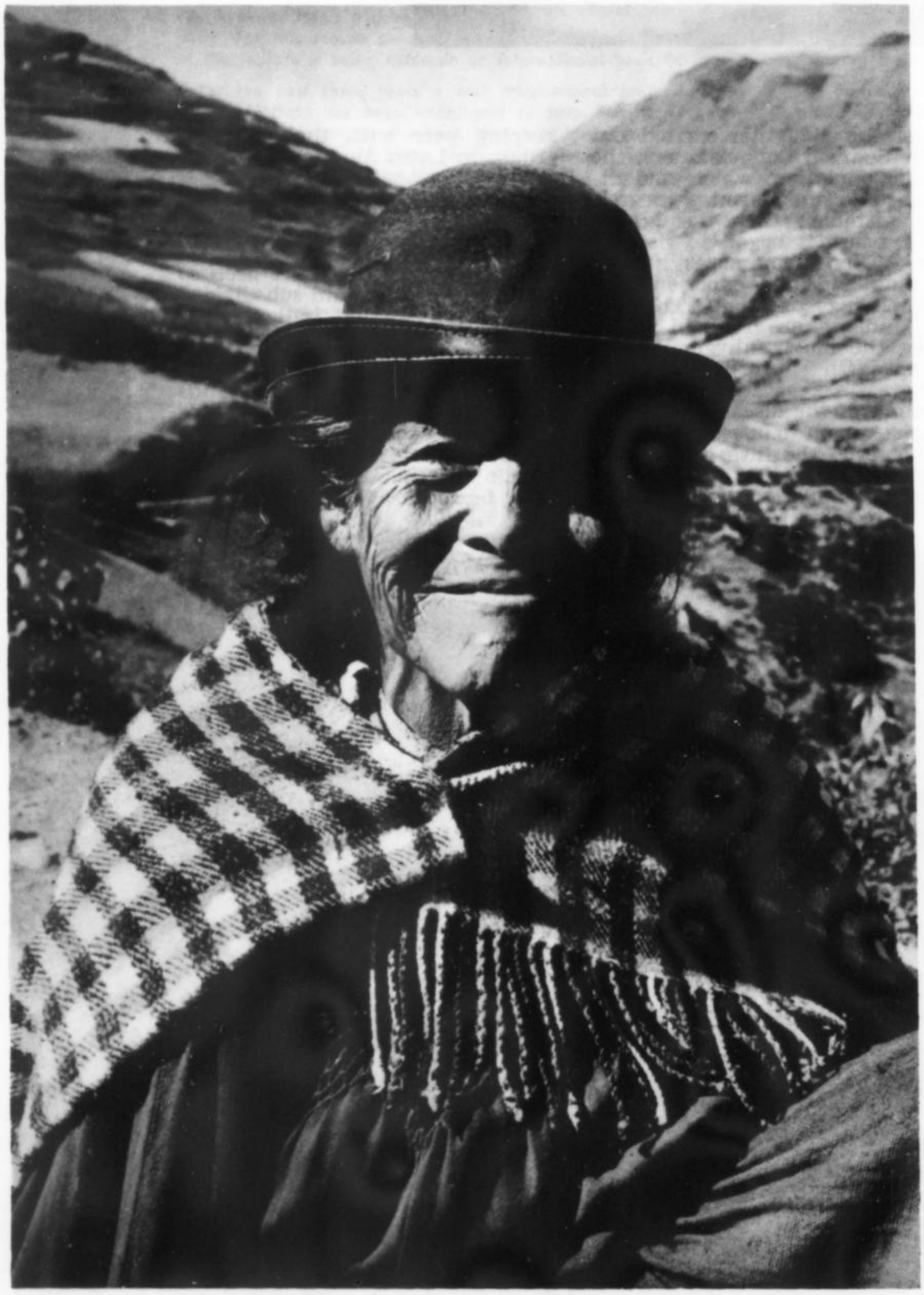
The evolution of the Indians into a rootless labouring class aroused the concern of the Peruvian Government which then considered the possibility of re-settling these landless farmers on the unoccupied eastern slopes of the Andes. For this reason, Peruvian authorities asked for United Nations technical assistance to aid in settling the Tambopata Valley with Aymara Indians from the overcrowded banks of Lake Titicaca where population density may reach 150 persons per square mile.

This plan has created a good deal of controversy in Peru and elsewhere. It is an accepted belief—almost a dogma—that life in the warm lowlands is fatal to Andean Indians. Dr. Carlos Monge a famous Peruvian physiologist, has devoted a lifetime to proving that the lungs and other organs of Indians living at an altitude of between 10,000 and 15,000 feet have been modified by evolution and adapted to rarified air. There were many good reasons to fear that changing this environment might prove disasterous to the health of the Indians.

Spanish chroniclers of the 16th Century tell us that the Incas who once reigned over Bolivia, Peru and Ecuador shared this belief. When they deported entire Indian peoples from one end of their empire to the other, the Incas always tried to duplicate previous living conditions.

It is too early to say whether or not this biological inability of the Indian to adapt himself to life at sea-level is as absolute as we have been told or whether settlement on virgin land along the branches of the Amazon is really possible. The question is vitally important for the future of these peoples. The task assigned to the

'BOWLER HAT' with turned-up leather brim worn by this old woman is the usual headgear of Bolivian Indians who live in the upper valleys of the Andes. It was originally inspired by the shape of the hats worn by the Spaniards in Colonial times. *(Photo ILO.)*



LLAMA CONVOY CROSSING ONE OF THE HIGH ANDEA PLATEA

DANCE STEPS of Indians are an ancient heritage. Here village men follow monotonous round of movements. *(Photo Verger)*

BAREFOOT BALLET is suggested by group of Indians using same house building methods as their Inca ancestors. Men leaping into the air are pressing down the earth inside a wooden framework to make walls waterproof, while others dig out more earth. *(Photo ILO.)*

first United Nations team in the Andean Highlands was to make an on-the-spot study of the Tambopata Valley, which slopes away towards the Amazon Basin and the Madre de Dios Province, to determine if it could be settled by the Aymaras at present condemned to work on their tiny plots of barren land.

As the crow flies, the Tambopata Valley on the Bolivian border is a next-door neighbour of the Andean plateau. It is however separated by a formidable barrier—the chain of the Andes—which must be passed through deep, narrow gorges where the sun seldom penetrates. Only Dante's Inferno, as it was conceived by the great illustrator Gustave Doré, can give an idea of the landscape of the Sandia Valley which leads to Tambopata. It is a great crack in the earth running from 5,000 to 10,000 feet deep. Along one flank, there is a winding path which zig-zags down towards a foaming torrent only to climb back up again to dizzy heights. Raimondi, the famous 19th century geographer, who was an authority on bad roads, called this one of the worst he had seen in all Peru.

After an exhausting four-day march, the traveller suddenly finds himself face-to-face with the Tambopata Valley. It is another world—gentle mountains, thick forests singing to the tune of hundreds of brooks, prairies of tall grass and a bluish ridge of peaks deployed towards the great Amazon plain.

One hundred years ago, this Andean Arcadia was deserted when Sir Clement Markham visited it to hunt for the Cinchona plants (the source of quinine). Today, between 4,000 and 5,000 Indians (no exact census has yet been taken) have settled there to live in relative prosperity from their coffee and other tropical crops.

We visited these coffee plantations. The bushes were sturdy and well cared for. Everyone had enough to eat and huts were larger and better built than on the high plateaux. Without any private or government aid, these pioneers had conquered the forest. They were Indians from the villages of Moho and Conima beside Lake Titicaca. They had been born and *(Continued on next page.)*

ANDEAN PLATEAUX IS DRIVEN FROM BEHIND BY TWO INDIAN RIDERS. THESE "CAMELS" OF THE NEW WORLD ARE BRED AS BEASTS OF BURDEN AND FOR THEIR WOOL. (Photo Almasy)

REED CANOES are woven by Indians of Lake Titicaca as there is no wood thereabouts. These craft are sufficiently stable to resist the terrible storms that often whip this 130-mile long lake more than 12,500 feet above sea level into a fury. *(Photo Almasy.)*

MARKET DAY in Bolivian village of Chunumake—centre of coca production—brings Indians with their produce to sell or barter. Although Bolivia is in the torrid zone, these plateau villages have a comparatively cold climate because of their height. *(Photo Almasy.)*

raised in the cold mountain air and later they had worked the rocky soil of the dry *puna* with their short hoes. The contrast between their birthplaces and the valley where we met them was particularly striking.

Are these mountaineers a living denial of all the pessimistic theories concerning the conservatism, the lack of initiative and the physiological inadaptability of the Andean Indians? They are, but what really counts is how these highlanders have learned to become excellent tropical farmers.

The Conima Indians told us proudly: "We were the ones who opened up the Yungas of Bolivia." This is not quite the case, but it is true that thousands of Conima Indians have settled in the Yungas, the tropical valleys in the Andes behind La Paz, the Bolivian capital. These warm lands produce an excellent grade of coffee and their soil is among the richest and the most fertile of all Bolivia.

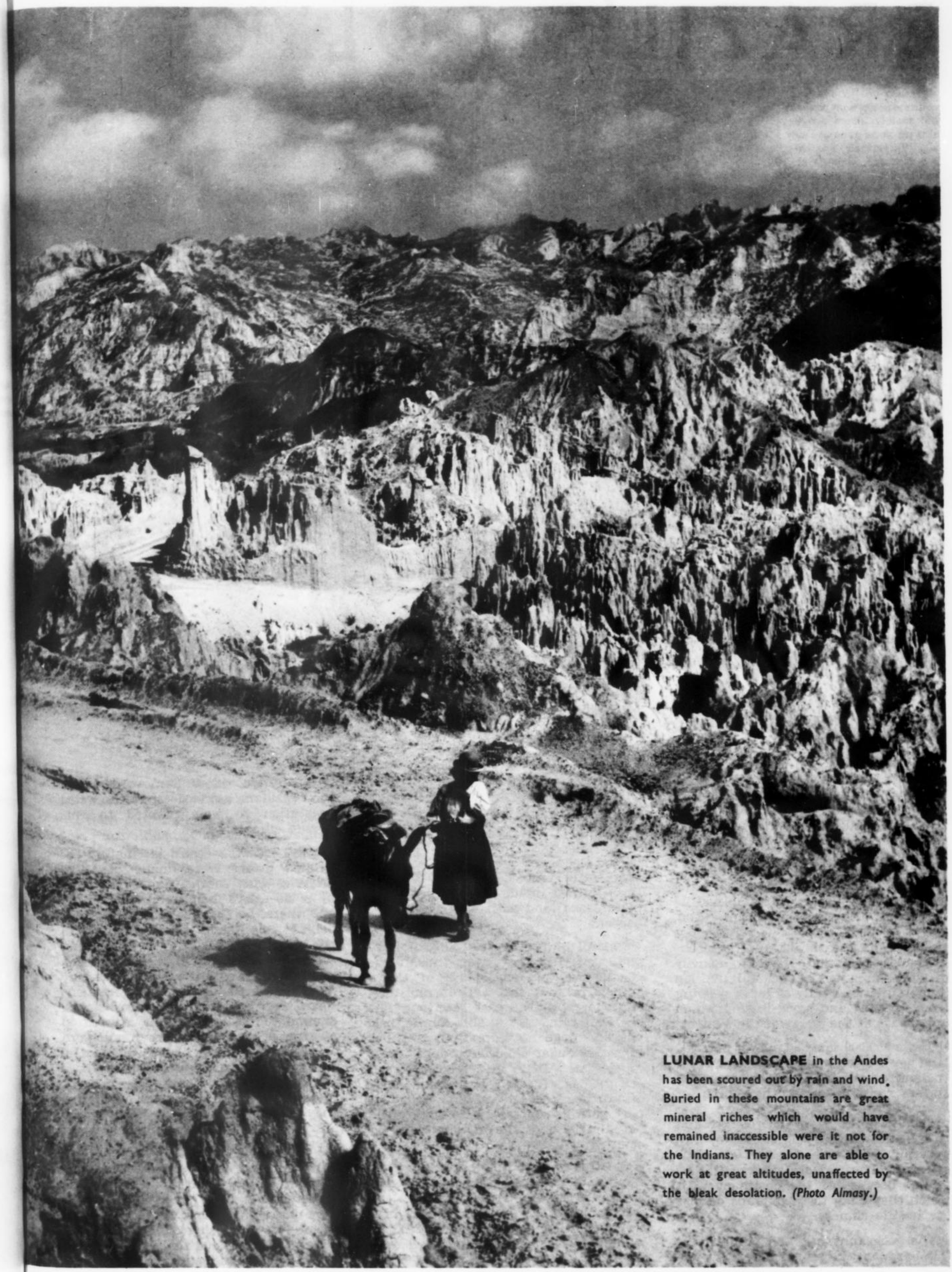
The pioneers of Tambopata had all learned the lessons of the Yungas. They had worked there as farmers and as small land-owners until they were forced to return to their native villages by political disputes. There, they also returned to their old misery, but they were not discouraged. Carrying their food supplies on their backs, they crossed the Andes and, as soon as they had found land similar to their old holdings, they began to clear away the jungle. Once they had planted maize and sweet potatoes on burned-over clearings, some of them returned to the barren highlands while others worked old gold placers abandoned by the Spaniards. At harvest time, they returned and found their fields blanketed with maize. They had succeeded in gaining a foothold in the valley and now they were safe. Then they cleared more land and started to grow coffee.

These pioneers became leaders of the settlers and helped the Indians who followed in their footsteps. Much of their success must be credited to the "ayni", the Aymaras' system of cooperative aid to each other. The "ayni" can mean a loan to a member of the community faced by heavy expenses—for example, a funeral or a wedding. It can also mean relatives or friends getting together to sow or bring in a harvest. Thanks to the help of the "ayni", a new settler in Tambopata can keep going until his first harvest. Later, he repays the community.

The Indian settlers at Tambopata have not severed all links with their native mountains. Every year, they return for their village festival to breathe "fresh air" and eat their traditional food. They jealously cling to the tiny plots which they have inherited at home even though yields are dubious.

Many of these settlers lead a double life, economically speaking, at least. During part of the year, they are tropical planters and, the rest of the time, they are Andean peasants. They are the backbone of the Indian element settling virgin territories. Indian colonization has not always given good results up until now because it has been carried out without any help and on a hit-or-miss basis. But it is true that if the plan now under consideration does bear fruit, its first result will be to bring to the surface the latent energy, sobriety and courage of the Andean Indian.

NARROW ROADS, only links between fertile valleys of the Eastern Andes, are very often squeezed between sheer rock walls and dizzy precipices. Here, a meeting with another vehicle calls for intricate manœuvring. *(Photo A. Métraux.)*



LUNAR LANDSCAPE in the Andes has been scoured out by rain and wind. Buried in these mountains are great mineral riches which would have remained inaccessible were it not for the Indians. They alone are able to work at great altitudes, unaffected by the bleak desolation. *(Photo Almasy.)*

BRAZIL'S POLYGON

WHERE EVERY DROP COUNTS. In the parched soil of Brazil's arid north eastern region a farmer reaches water after digging into the dried-up bed of the River Serido, near Parelhas. Though important mineral deposits exist in plenty, water is still the most precious commodity in this land of drought and famine

OF DROUGHT

by

E. Aubert de la Rue

To a Brazilian, the word *Nordeste* automatically evokes the spectre of drought and famine which periodically afflict the great wastelands in the northeastern part of his country. This ill-fortune is all the more tragic because, by the normal rules of geography, the *Nordeste* should have the same damp, rainy climate as its neighbour, the Amazon Basin. And, as if this grim climatic twist was not itself a sufficient threat, another problem—overpopulation weighs heavily on the area. The several million inhabitants try vainly to make a living from farming and stock-raising which are always at the mercy of the weather.

These 300,000 square miles of parched land cover some parts, or in some cases the entire territories, of eight Brazilian states, running from the north of Bahia to the Piaui. They have been termed "The Polygon of Drought" and their unfortunate inhabitants are generally referred to as *Los Flagellados* (Those who scourge themselves) because of the obstinacy with which they cling to their lands despite the hostile climate.

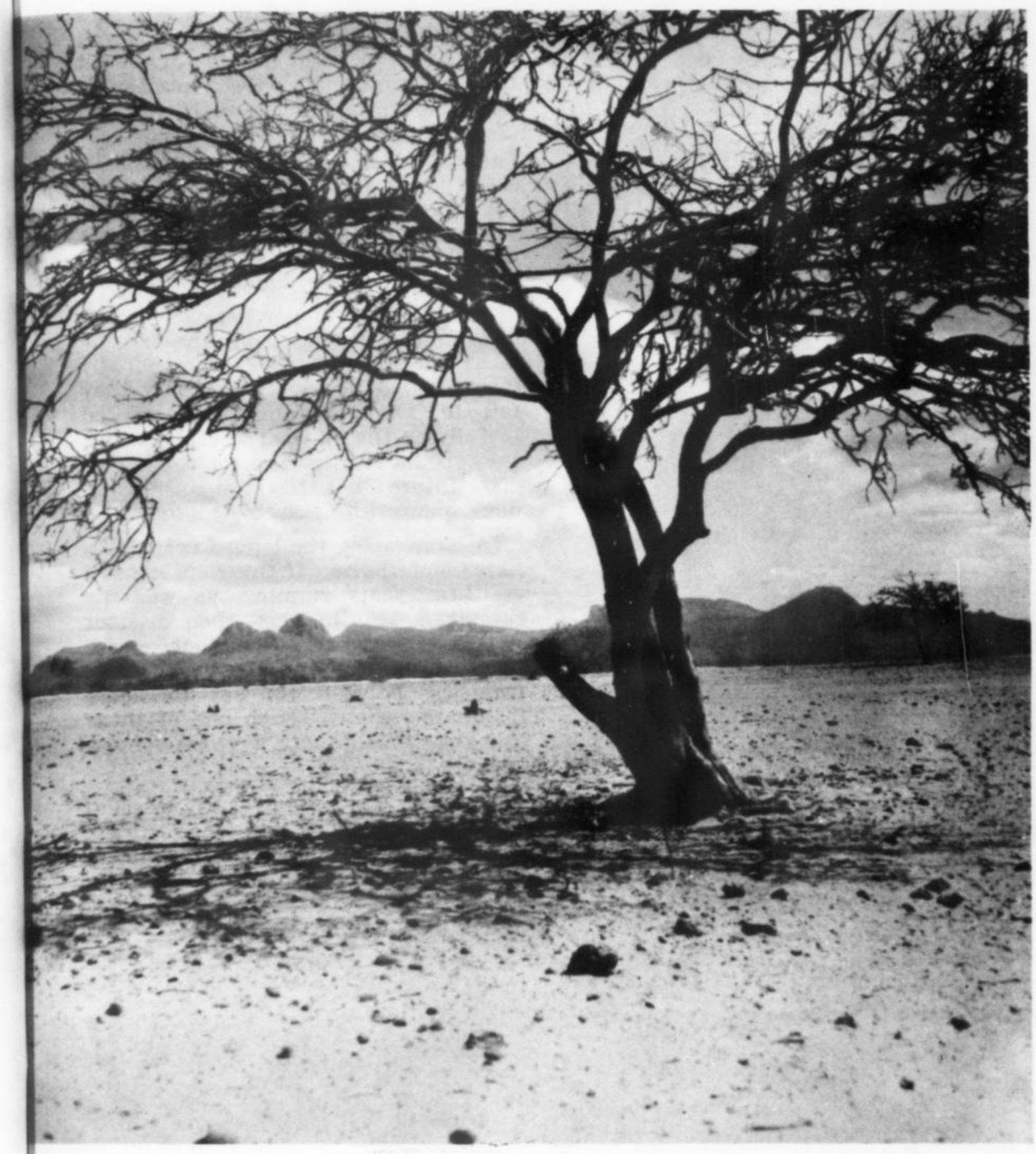
The geography and the problems of this hard, austere region which has not been able to keep step with the rest of Brazil (except for the Amazon Basin), have made it a curious and picturesque land with many grandiose aspects.

Not all of northeastern Brazil is so badly off, however. Even though the coastal zone of the state of Ceara suffers from a shortage of moisture, the shores on the east receive a fair share of rain. Along this humid, privileged fringe no more than 30 miles in width, sugar cane is produced on a large scale. Here, in a tropical green setting, is Recife, the main city of northeast Brazil and its principal port, with its contrasts between archaic old Brazil and the dynamic young country of today.

But this smiling facade is misleading. Behind it stretches the *sertao,* the backlands where the rainfall is extremely variable. Some parts of the *sertao* are near desert while others, at a higher altitude, receive a heavier rainfall which serves mainly to water the *caatinga,* an Indian word which the Brazilians use to describe the weird vegetation so well adapted to this hostile climate.

The *caatinga* consists mainly of twisted dwarf trees, many of them bristling with thorns, and surrounded by a no-man's-land of cactus. Here and there, *barrigudas*—grotesque, pot-bellied trees—lend a comic note to the inhospitable brush. Lumbering for construction and firewood has made heavy inroads into the *caatinga,* to say nothing of land clearing, frequent forest fires and the ravages of goats. Around towns, it has been reduced to a carpet of brush plants, each one more thorny than its neighbour. When the *vaqueiros*—the close-mouthed cowboys of the *Nordeste*—drive their herds into these pastures for grazing, they dress in leather from head to foot and the bellies of their agile horses are protected by leather aprons.

These riders of the *caatinga,* in their red outfits and their goatskin three-cornered hats, have no easy life. Often, they have to "harvest" the cactus themselves and singe off its thorns before they can feed their animals. To provide for lean years, they actually



Hostile landscape

The hostile, unsmiling landscape of Brazil's Polygon of Drought has served as a setting and an inspiration for some of the country's most powerful and realistic modern literature. Novels have depicted the harsh, violent life here. Perhaps the most famous book on this region is "Revolt in the Backlands" *(Os Sertoes)* by Euclides da Cunha. This tells the story of the campaign waged by the Brazilian authorities against the rebel leader Antonio Conselheiro, whose partisans followed him with fanatic devotion to the death. This is the land of the *caatinga*, the weird, twisted dwarf trees and dried-up scorched plains, such as that in the Ceara region (left) bounded by the Sierra da Uruburetama in the distance. In years of serious drought, sad processions of *retirantes* (below) who have sold their herds and abandoned their homes, cross these burning wastes heading for kinder regions.

raise fields of non-spiny cactus which serve as fodder for stock.

Other crops, too, can be raised in this unsmiling land—mainly maize, manioc, cotton and sisal which can get along in rocky soil and a hard climate. Even though most of the year is dry, river beds still keep enough humidity to support some farming. Planted with beans, sweet potatoes or squash, they form winding green ribbons running through the scorched backlands.

There is water all year round only in the majestic Rio Sao Francisco, which has its sources in the rainy north. In the Polygon of Drought, it hurtles over the Paulo Afonso Falls which will soon become northeastern Brazil's major supplier of electricity.

Throughout the region, rainwater and flood waters are now being stored painstakingly behind dams. The entire country is studded with reservoirs, large and small, and, at many points, they have made life much easier for the *Nordestinos* who can now raise crops on irrigated land.

When the rains come to the *caatinga*, they cover this spiny jungle with a miraculous coating of tender leaves

(Cont'd on next page)

BRAZIL'S POLYGON OF DROUGHT

(Continued)

FLUVIAL FRONTIER between two Brazilian states, Sergipe and Alagoas, is the broad Sao Francisco River. Here, it nears the sea, 1,800 miles from its source.

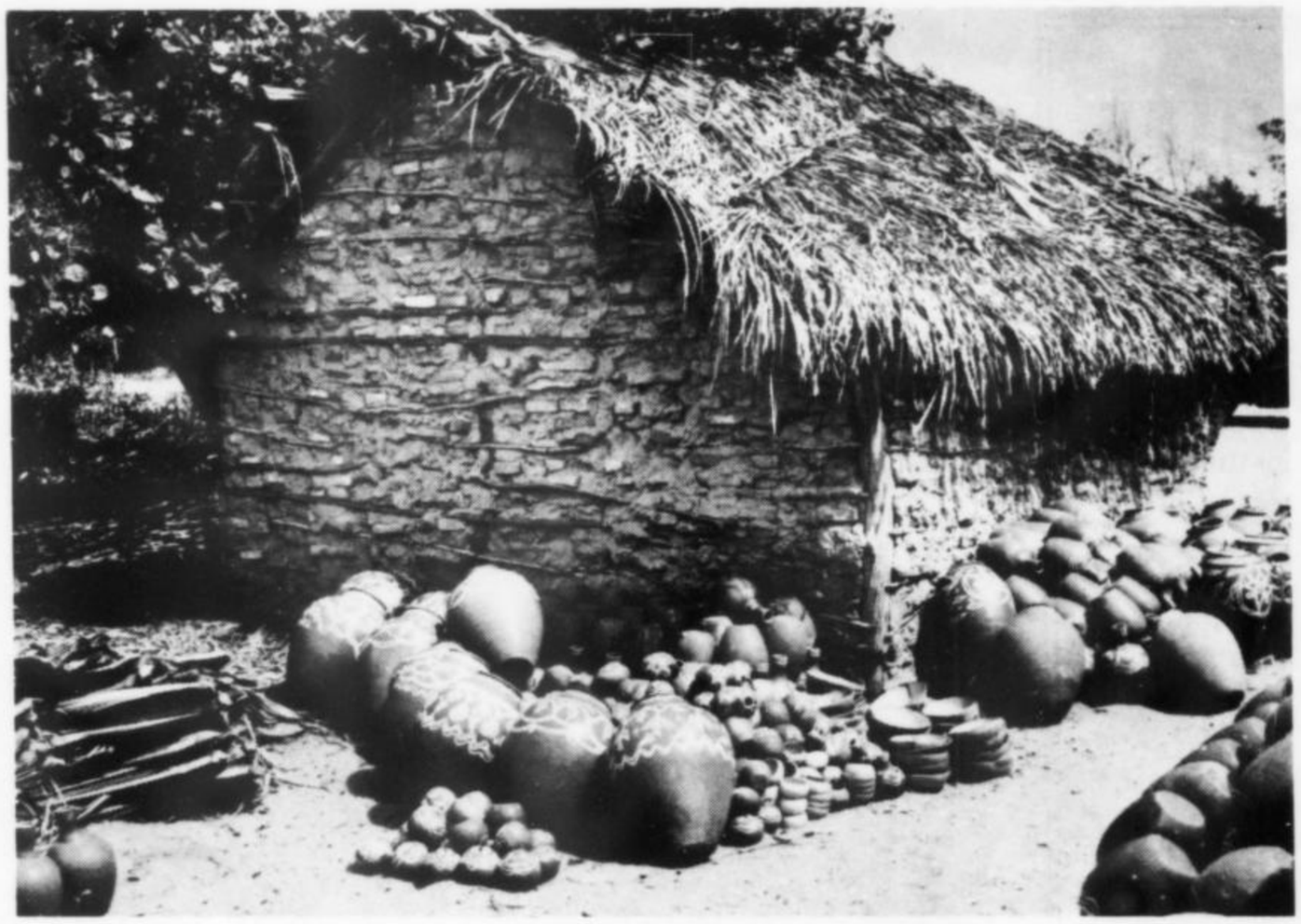
almost overnight. This happens usually between December and March after seven or eight months of almost total drought. In only a matter of days, the winter setting of the Polygon (accompanied by temperatures of 105° Fahrenheit, of course) is replaced by a green landscape which has nothing of the tropics about it. The coconut groves around the villages and the relentless heat of the sun are the only reminders that the Equator is close.

The economy of northeastern Brazil is handicapped more by the irregularity of this rainfall rather than by its dearth. When the rains come, they fall in torrents which are greeted joyfully by the Polygon's people. True, they spell a rich harvest for the immediate future... but they also wash away huge quantities of arable topsoil.

In some years, the long-waited rains never materialize. If this happens two or three years running—as was the case from 1951 to 1953—then disaster strikes. Herds are wiped out, entire towns go hungry and the backlanders from the Polygon set out for more fortunate regions. Each one of these droughts touches off a chaotic mass exodus.

The Government has vainly tried to channel this exodus into neighbouring Maranhao which is thinly populated. Instead, the *flagellados* flock down to the booming south of Brazil. And the miserable parade of *retirantes,* who

PART-TIME PROSPECTORS of northeastern Brazil are the *garimpeiros* who forsake farming during the dry season to uncover the mineral riches of the soil. Already the region is producing more than 20 different minerals of economic importance. With primitive, home-made equipment (top right), prospectors dig up deposits of tantalite and beryllium or search for fluorine (left) and other minerals which bring good prices on the world market. Group of *garimpeiros* (bottom, right) have sold their minerals at weekly market in Parelhas and now wait to be taken back home by truck.



LOCAL INDUSTRIES make maximum use of the few above-ground natural resources offered by the " Polygon of Drought ". Pottery is a thriving craft and, as shown in photo above, jars and pitchers are in great demand in this land of thirst. Pitchers and bowls displayed outside a potter's house in the Ceara region (above, left) show the variety and artistry of these products. Although Brazil's chief tobacco growing area is round Bahia, to the south of the dry *Nordeste*, the plant is also widely grown around Paraiba, in the *Nordeste's* coastal region. Leaves, twisted into thick rolls (below, left), find a ready sale in the market at Crato *(below)*, in the neighbouring state of Ceara.

have sold their herds and abandoned their homes, covers the tracks of the backlands as it crawls south in jolting, lurching truckloads into already overpopulated cities.

The arrival of these waves of *flagellados* and their families, who flood into the cities, raises all kinds of problems, for many are unable to find work. Some remain homesick for their native *caatinga* and, when the rains come to the *Nordeste,* they return home again but even poorer than the day they left. Brazil's leaders believe, and rightly so, that mining can help bolster the economy of the Polygon. This belief is not merely a wild hope: it is based on the discovery of several rare minerals in the region during the past 15 years. Although it has not been thoroughly prospected, the Polygon is already producing about twenty different minerals of economic importance.

This mining is carried on mainly by *garimpeiros,* self-taught prospectors who work on their own with primitive equipment. Under these conditions it is tough work and in the torrid climate of the *Nordeste,* the miners often have to haul the water they need by mule-back. But they persevere and their doggedness often pays off. Each of them hopes to have the same luck as Vicente Paulo, a labourer who made a strike, quite by accident, at Sao Vicente in the state of Paraiba, in 1941. Thousands of *garimpeiros* followed him and, in a few years, pulled out five tons of nuggets and gold dust. At present, however, prospectors are concentrating on beryllium, tungsten, lithium and other minerals which bring high prices on the world market and which can be worked relatively easily in surface deposits.

Garimpeiro prospecting is seasonal work and depends to a large extent on the weather. If the rains come on schedule, the prospectors stop harvesting minerals and work their farms. In dry years, their ranks swell, for many a farmer turns to mining to keep his family alive. Unfortunately, their primitive methods of working lead to a sheer waste of minerals.

Prospecting in the Polygon, now a local affair, should be extended to cover the entire dry belt of northeast Brazil and experienced engineers should be sent on the spot to guide the *garimpeiros.* In addition, these prospectors should be trained and given proper equipment, and their efforts coordinated. Under such conditions, mining in the *Nordeste,* where there are now only a few well-equipped mines, would cease to be a mere "picking" of minerals. And it would enable this land handicapped by its climate to pull its weight in the economic life of Brazil—a goal towards which the Brazilian Federal Government is now turning its efforts.

Photos published on pages 10 to 15 are copyright by the author, Edgar Aubert de la Rue. The drawing on page 11 is taken from Josué de Castro's book, "Geography of Hunger".

When a geologist turns detective

DR. EDGAR AUBERT DE LA RUE, a French geologist, went to Brazil in 1953 after the Brazilian Bank of Industrial Development had requested technical assistance from the United Nations. His mission was to help pave the way for future teams of geological prospectors in the northeast of the country where a complete geological survey had never been made.

During his career he has covered most of North America, South America and Australasia, and before arriving in Brazil he had been scientific adviser to the French Government research station in the Kerguelen Islands in the Antarctic. He spent his first two months in Brazil at Rio de Janeiro, working with Dr. Paiva Leite, Director of the National Bank for Economic Development, and with the Brazilian Department of Mineral Production to collect known geological data on north-east Brazil. Then he disappeared into the "Polygon of Drought", travelling by jeep.

His work consisted of indicating likely deposits for intensive prospection in the future. This meant not only surveying on his own and taking photographs—he took some 2,000 during the year he spent in Brazil—but also following up clues left by the local prospectors.

On a typical day, Dr. Aubert de la Rue began work in the town of Arcoverde, an important road junction in the centre of the State of Pernambuco. He had already lost two days in Arcoverde, ironically enough, because the dry Polygon was experiencing one of its torrential rainy seasons and roads had been washed out. He had used this time to visit the local prefect and to glean as much information as he could about the region's mining. The prefect was helpful. He introduced the geologist to the tailor of Arcoverde, the town's main mineral dealer, and the tailor was very obliging. He offered Dr. Aubert de la Rue samples of titanium, asbestos, beryllium, mica and iron ore. But, when the geologist asked where the samples came from, the tailor only smiled politely.

Dr. Aubert de la Rue took the samples and walked down to the market place. One farmer recognized them. They came from the Municipe (county) of Sertania, about 20 miles west on the Petrolandia road.

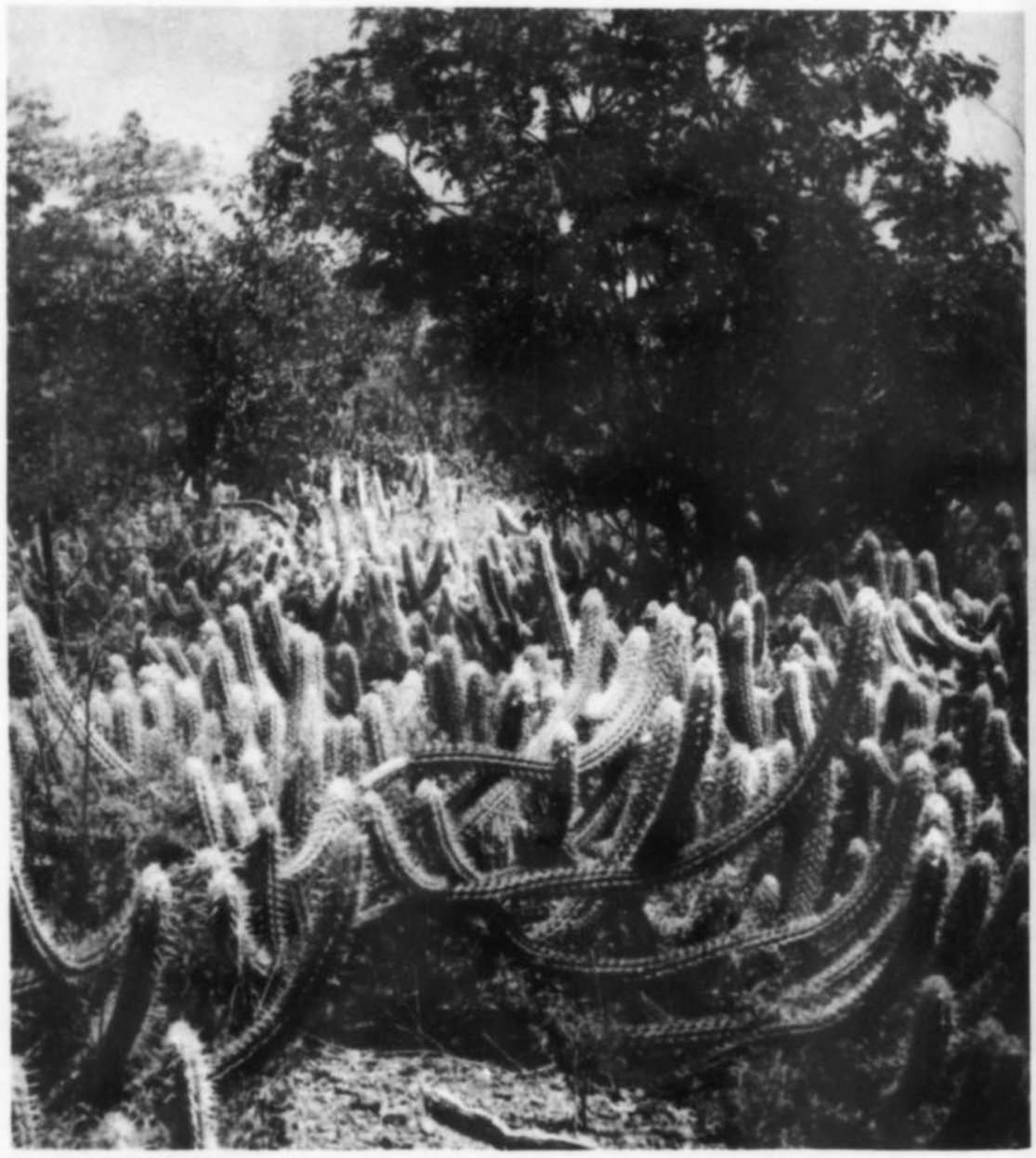
The geologist made an early start. In the Polygon, there is no point looking at stones after 11 a.m. when the thermometer goes up to 105° Fahrenheit in the shade—if there is any shade. Minerals are literally too hot to be touched.

When Dr. Aubert de la Rue reached the village he was seeking, he struck up a conversation with a cattle hand who seemed to know where the samples came from. The *vaqueiro* tethered his horse and climbed into the jeep. They struck out across country navigating by landmarks as the jeep picked its way through clumps of cactus so high that ranchers in the region sheath their horses' bellies with leather aprons.

Four miles away, they arrived at a farmhouse. The farmer was hospitable and he offered to lead them to his mine. In the mountains next to his land, he showed them a hole 10 feet deep: the family mine. Whenever the family needed cash, he, his wife, and their seven children went out to the mine and dug up a load of asbestos. Dr. Aubert de la Rue marked the uncharted mine on his map and continued to prowl around the region. In the municipe, he came across a few samples of titanium and some extremely favourable indications of the presence of uranium.

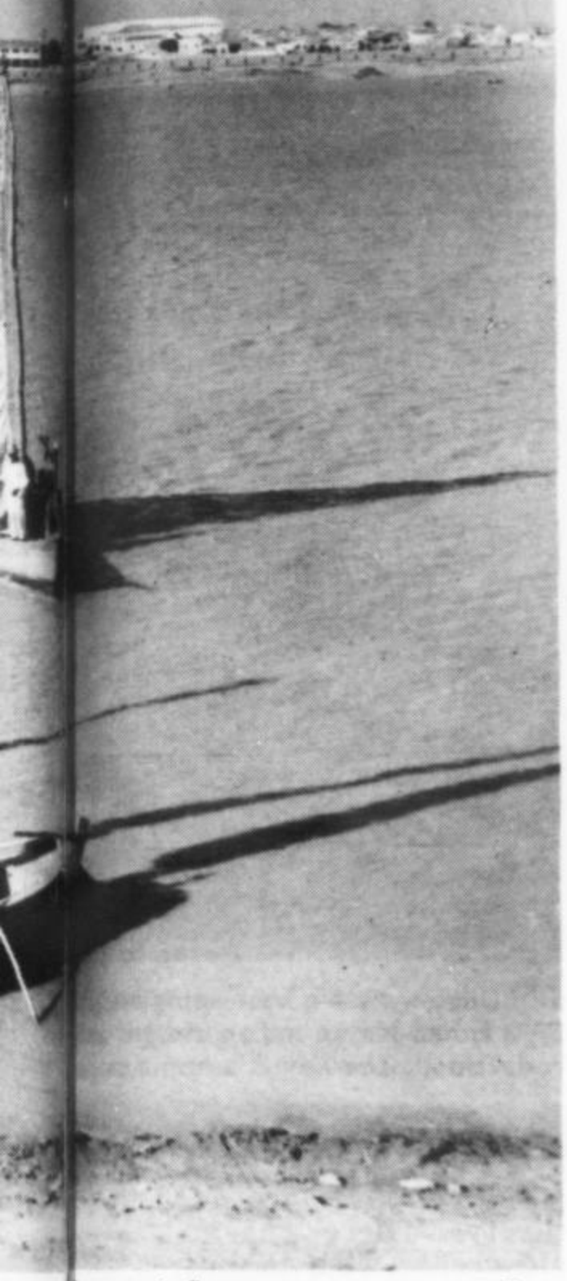
The next day, he left Arcoverde and headed for a new destination, making a 200-mile jump with his jeep over the Polygon under the afternoon sun. Then the same process began all over again. It was to continue for 12,000 miles.

LARGEST RIVER in the Brazilian *Nordeste* is the Rio Sao Francisco photographed here as trolina (on far bank) and Juazeiro. It is the only river in the region in which there is a flo



SPINY BARRIER of cactus and dwarf trees, the only vegetation that resists the climate of the *Nordeste*. After the December rains a miraculous coating of leaves mantles the dusty soil in green.

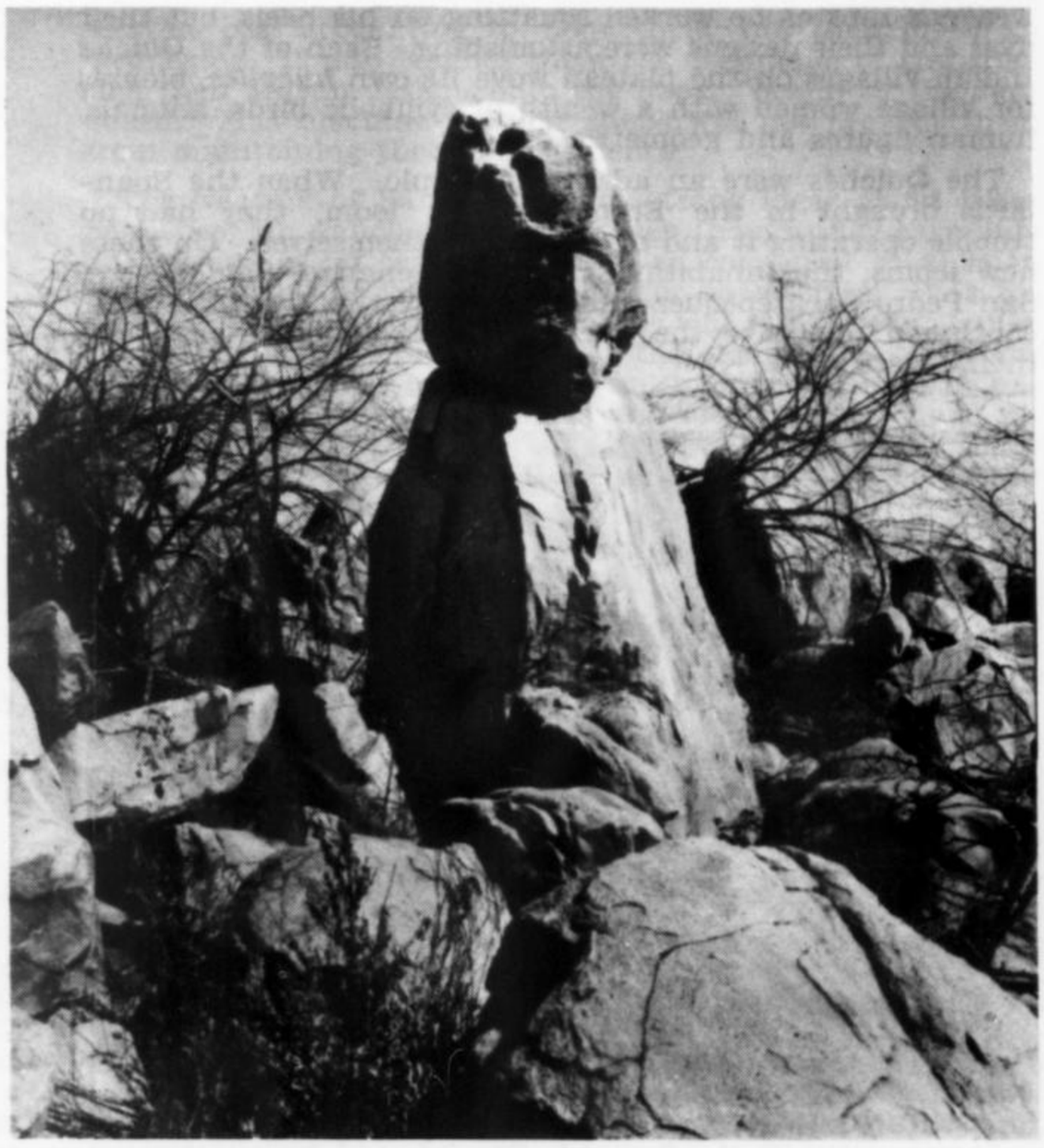
POLYGON OF DROUGHT *(Cont'd)*



graphe here as it flows past two towns, Pe-
h then is a flow of water all the year round.

VERSATILE PALM with spiral trunk is put to many uses by the people of the backlands. Its leaves provide a kind of wax, its trunk is used for house building and from its seeds the poorer people brew themselves a kind of coffee.

LEATHERCLAD COWBOY, the *Vaqueiro*, is a traditional figure in the region. These riders of the *caatinga* protect themselves from the raking thorns with leather outfits that cover their bodies and legs.



SUN-BAKED ROCKS lie around like handfuls of pebbles cast at random by a giant. Within their shade a few spindly plants and trees have taken root, finding enough moisture in the barren soil.

"In Latin America, Unesco can mean a jeep slithering over muddy tracts and fording streams in Costa Rica's rainy season, or a man on horseback riding up into the hill country of Colombia. It can be a Catholic brother writing a textbook or a scientist studying the nutritive values of plants. It can mean a mechanic installing a lathe or a teacher introducing eight-year olds to the printed word." This is what a Unesco correspondent, Daniel Behrman, found as he watched Unesco's technical assistance experts in action in seven Latin American countries where they are often known simply as "Los Unescos." Mr. Behrman was sent on a special Unesco mission to bring back a first-hand, realistic report on the results of technical assistance in Mexico, Guatemala, Costa Rica, Colombia, Bolivia, Peru and Brazil. Here, and in other lands of Latin America, the combined efforts of teachers, broadcasters, botanists, agriculturists and other experts are revolutionizing the lives of countless people today. In the articles that follow, Daniel Behrman describes what he saw in Guatemala, Colombia and Costa Rica. A full account of his trip has appeared in "When the Mountains Move," a pamphlet published by Unesco.

APPRENTICE WEAVERS in Guatemala are now being taught how to preserve their country's famed Mayan Indian designs and at the same time to raise production. The key is a home-made Jacqu on a Unes

WHEN Don Pedro de Alvarado marched south from Mexico into Guatemala in 1523 at the head of a handful of *conquistadores,* he discovered a people of weavers in the Mayan Highlands. They used stick-looms, nothing more than a warp with one end tied around the weaver's hips as he worked squatting on his heels, but their dyes and their designs were astonishing. Each of the *Quiché* Indian villages on the plateau wove its own *huepiles,* blouses for village women with a wealth of symbolic birds, animals, human figures and geometric designs.

The Quichés were an adaptable people. When the Spaniards brought in the European foot loom, they had no trouble operating it and duplicating it themselves. On these new looms, the inhabitants of Quezaltenango, San Marcos, San Pedro Sacatepéquez and other towns in the highlands, continued to weave the ancient Mayan designs taught by their elders.

GUIDING HANDS of skilled ceramics teacher aid those of an apprentice in the Guatamala City Industrial Institute for Boys—centre of an industrial education plan directed by government authorities and an international team. (Unesco photos.)

The stick-loom slowly became a curiosity. There was no limit to the designs that a weaver could create with it, but it was slow and unproductive. A Quiché woman using a stick-loom needs almost two months to make a *huepil* which she can sell on the old textile market at Quezaltenango for 25 *quetzales* (the *quetzal* is on par with the U.S. dollar). She takes her work with her wherever she goes, snatching a few moments from her kitchen or from her fields to unroll the loom and attach it to a tree.

The foot loom was a vast improvement, but the weavers had to pay a penalty even for this timid step towards productivity. The fantastic designs of the Mayans, riots of reds and yellows made with dyes whose secret is lost today, took too much time to pick out. The weavers turned to simplified stylized patterns for the sake of production. Unfortunately, these simplified designs offered little that could not be reproduced by machine. The goods of the highland weavers vanished from the markets of the capital at Guatemala City and Guatemala's oldest art began to die out. To make matters worse, the gain in production had not offset the loss in quality. A weaver still could produce only three yards of cloth a day at 30 centavos ($.30) a yard. Whether he used a food loom and sacrificed art to productivity, or whether his wife stubbornly clung to her stick loom, the Quiché weaver was caught in an economic vice.

Then, several years ago, a stranger came to Quezaltenango, Guatemala's second largest city and the capital of its textile country. He was Jean-Charles Hugoné a French scientist and industrial engineer, and he had come into the highlands as a member of a Unesco technical assistance mission working with Guatemala on industrial education. Mr. Hugoné had had more than 35 years of textile experience, including a decade in Argentina.

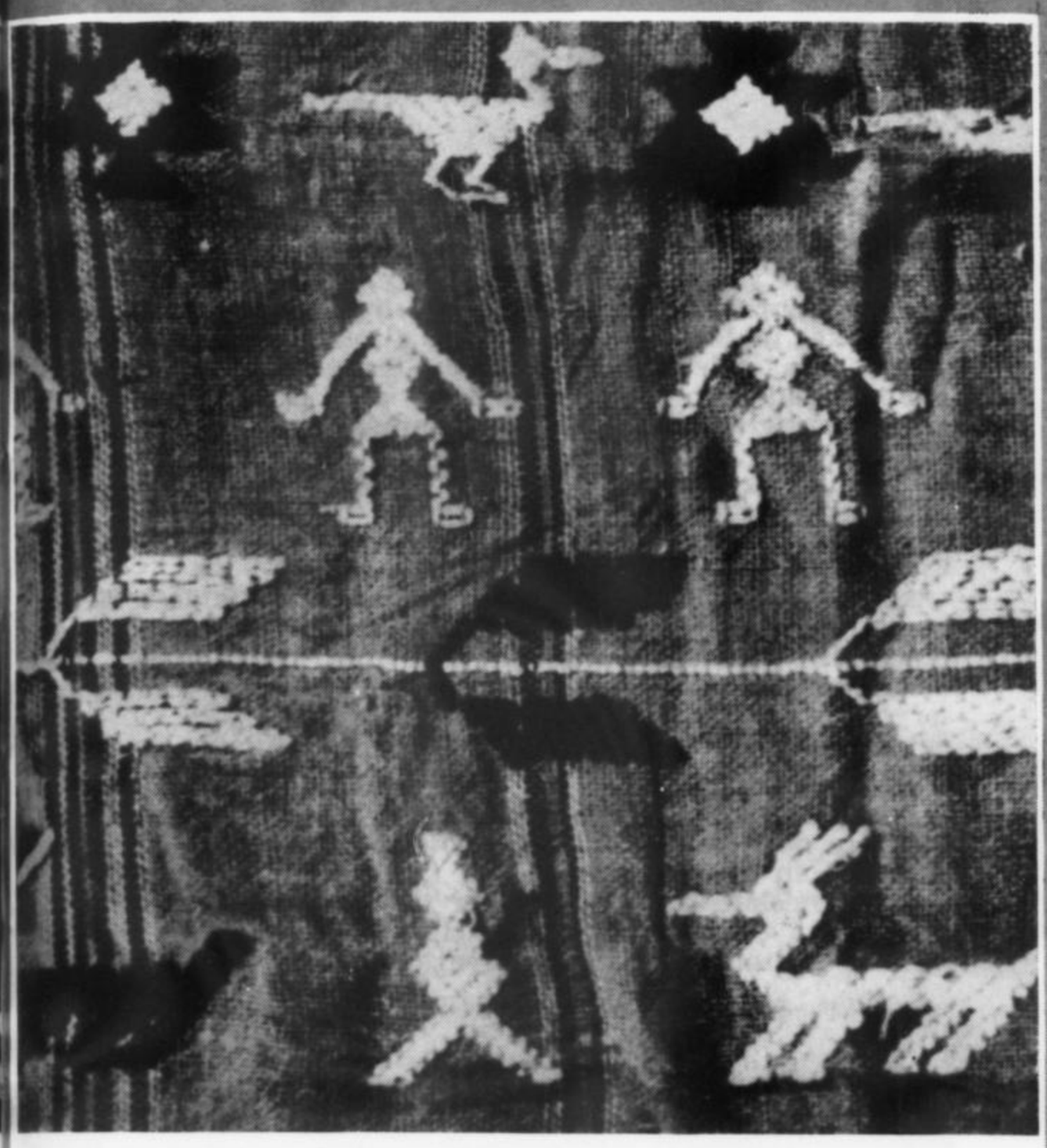
The problem he found in the Mayan Highlands was obvious : the weavers had to raise production enough to earn their living and, at the same time, preserve Mayan designs, their best stock in trade, from extinction. Mr. Hugoné had had the germ of an inspiration one day in Guatemala City when he and Dr. Ernest Cofino, director of the city's biggest orphanage, were going over the institution's vocational training classes. While the two men were taking inventory of a storeroom, they saw the frames of an old Jacquard loom rising out of the darkness.

'Los Unescos'
in Latin America

I

The Mayans modernize

by *Daniel Behrman*



Jacquard device (it has a mechanical brain which sets the pattern on a loom) built at a cost of $75 by a textile engineer with Unesco's technical assistance mission. Local joiners now build it.

The Jacquard was perfected in the early days of the 19th Century by a Frenchman from Lyons, Joseph Marie Jacquard, and it was one of the precursors of modern "thinking machines". This invention is a loom attachment which works the warp threads automatically to form a design while the weaver merely throws his shuttle. Its principle is somewhat that of the player piano—the design is punched out on a paper sheet which is then fed into the Jacquard. Anything can be woven with a Jacquard—portraits, landscapes or even, as in the case of a museum piece in Lyons, the last will of King Louis XVI.

This seemed to be a way out for the highland weavers, but there was one big stumbling block. A Jacquard can cost from $500 to $1,000 and no craftsman working his family loom in an adobe house at San Pedro Sacatépequez could envisage such a capital investment.

At this point, Mr. Hugoné decided to become a *bricoleur*—an untranslatable French word for a poet of the machine age, a man who can take a few lengths of baling wire, an odd board and an old stove lid and convert them into a new heating system for his home or an automatic gearbox for his car. He sat down with a Guatemalan carpenter and, between the two of them, they built a "national Jacquard" out of wood at a cost of $75. When new weaving classes were started by Dr. Cofino at the orphanage, the home-made Jacquard was ready for use. As for the carpenter, he began to make Jacquards on his own and found ready buyers among weavers in Guatemala City.

Then Mr. Hugoné left for the highlands 120 miles west of the capital. There, he embarked on a double life. At Quezaltenango, he and the director of the city's pre-vocational and industrial school, concentrated on training weavers to work power looms in the big textile mills on the outskirts of the city. But, three days a week, Mr. Hugoné was in San Pedro Sacatépequez, 30 miles to the west, over a road climbing through the clouds. There, he worked with Raymundo Sanchez, director of a spinning and weaving school, and taught future craftsmen to follow their ancestral trades. Quezaltenango needed good factory hands; San Pedro wanted craftsmen and there was a potential market for the products of both.

Within two years, the number of pupils at the school in San Pedro has risen from 28 to 72. Students first learn their trade at the age of twelve. They start with a simple pattern of wavy lines but, by their second year, they are already working on Mayan designs. This, of course, could be learned in the home of any of the 2,000 weavers of San Pedro, but the course does not end with the looms. The school teaches weavers cost accounting to help them run their one-man businesses. It also teaches them the technique of transferring their Mayan designs onto the paper "brain" of the Jacquard. This machine in their shops will not prevent them from maintaining their independence.

The weavers of San Pedro have strong ideas about independence, Mr. Sanchez told me. Even though they earn only an average of 90 centavos a day—as compared to $1.25 in textile mills—they prefer to work for themselves. It is his hope that the home-made Jacquards will raise production to 5 yards of cloth per day, and, at the same time, open new markets for their work. The town, by word-of-mouth, has learned of the school's methods and local weavers have requested a night school. The Jacquard may turn out to be the last link in the chain of Mayan designs going back to the ideographs, or word pictures.

In the textile section of Quezaltenango's pre-vocational school, a model factory is being developed with the help of donations from mill owners. The school's electric loom is a gift from one mill and it now has ten foot looms for instruction purposes. In addition, there is a compact laboratory for conducting precision tests of materials.

The school intends to introduce the descendants of the Mayan weavers into the modern production line.

"We now train our own workers," the director of one of the biggest mills in the Quezaltenango region, told me. "They learn quickly, but they come to us without any experience with machinery. It is the same process as learning how to repair watches by yourself—first, you have to break a few. That is exactly what happens with our looms. Ten years ago our workers were incapable of understanding the instructions they were given," he explained. But a few years ago the mill opened its own school for adult workers. "Today," said the director, "80 per cent of our workers are literate and, in fact, we will only hire literate people. This is more than just a question of production in one textile mill. It is the economic growth of the country which is at stake."

'LOS UNESCOS' ❷

Don

Father José Salcedo first broadcast to his parish in 1948 with a home-made transmitter. Today he is the director of one of the world's biggest programmes of adult education by radio.

IN 1947, a slender young Catholic priest arrived in a forgotten hamlet perched high in the Andes of Colombia to take up his duties as assistant pastor of the Parish of Sutatenza. Father José Joaquin Salcedo brought to his first ministry a restless, driving urge to improve the lot of Colombia's *campesinos* who scrape their livelihood from incredible farms hugging dizzy mountain slopes. He also brought his amateur radio transmitter.

At that time the village consisted of eighty souls, but it was the largest community in a parish of 9,000 whose geography is typical of the Colombian Andes. Sutatenza Parish grows coffee in its warm valleys and raises sheep on its bald, chilly peaks. Some plots are so steep, local legend goes, that farmers seed them by shotgun.

The mountaineers were leading a grim life. They farmed their plots as their ancestors had always farmed them, harnessing themselves to their plough on slopes too steep to be worked by animals—and the land was washing away under their feet. They lived within windowless walls in what Father Salcedo later was to call "anti-hygienic fortresses." Only one peasant in three could read or write. Alcoholism was common. There was no diversion but drink, and as often as not Saturday night in a *taberna* ended in a brawl with the principals finishing in the Guateque hospital down in the bottom of the valley.

Father Salcedo believed there was no point in preaching sermons against the *tabernas;* instead, he decided to compete with them. In August of 1947 on the village square of Sutatenza, he introduced them to the motion-picture screen. The people of Sutatenza thought they were in another world; long after the show ended, they huddled enchanted around the projector to stare respectfully.

Father Salcedo had gained a foothold. To consolidate it, he drew up plans for a permanent theatre. The village of Sutatenza offered its help, but it was not enough and there was no way of making a general appeal to the parish for volunteer masons and carpenters... not until Father Salcedo, who had built his first radio at the age of 13, decided to try his amateur transmitter.

Thus, in May of 1948, Radio Sutatenza made its first broadcast, which was picked up by only three receivers. The priest asked *campesinos* to help him build the Sutatenza theatre and promised to record the voice of every man who aided him. Soon he was broadcasting the *campesinos'* own voices back to their amazed families and sixty men a day were coming to Sutatenza to work on the theatre, bringing materials with them—and money when they could.

With the theatre finished, Father Salcedo sought the help of the *campesinos* in developing what was to become the radio school. One day, the radio announced that farmers could make their contributions in chickens. Father Salceno received more than 800 and had to hire a truck to haul them to market in Bogota. Money was also forthcoming, and by 1949, he was able to buy a 250-watt transmitter. There were enough radios for fifteen schools and the priest started broadcasting an educational programme once a week.

Now, after seven years, Father Salcedo's home-made transmitter has been transformed into Accion Cultural Popular, one of the world's biggest programmes of adult education by radio.

Accion Cultural Popular now broadcasts its lessons six hours a day to 200,000 pupils scattered over twelve of Colombia's sixteen departments and overflowing into neighbouring Venezuela and Ecuador. The radio schools are served by 6,000 specially built receivers and 10,000 more are on the way. Within the near future attendance at these remarkable schools is expected to rise to 1,000,000.

The programmes still go on the air from Sutatenza, but they are now carried by a 25-kilowatt transmitter, the most powerful in all Colombia. The Colombian Government is backing Accion Cultural Popular to the amount of $800,000 a year and Unesco is now participating through the United Nations technical assistance programme.

Besides the studios and the transmitter in the transformed

RADIO SCHOOL files into its "classroom"—the adobe walled nut of a C an f lesson. Colombia's remarkable educational programme, Accion Cultural ar,

Quixote of the Radio

village of Sutatenza, Accion Cultural Popular now occupies most of the seventh floor of the biggest office building in Bogota. From an office with a panoramic view of the mountains of Guadelupe and Monserrate, Father Salcedo continues to direct its work.

I asked Father Salcedo how he could explain the phenomenal growth of Accion Cultural Popular in so short a time. "Any work which meets a basic need of the people must grow in direct proportion to this need", he replied. "Here, it is the need of 7,000,000 people in a country of 12,000,000 for literacy and general culture. It is not surprising that the number of pupils in the radio schools has risen to 200,000."

From the outset, he has had the support of the hierarchy of the Church and of public opinion. "Some men in education have had reserves about our methods", Father Salcedo explained, "but they have now come over to our side because we are introducing scientifically-tested materials in the radio school. It is exactly for this reason that we requested technical assistance from Unesco—to make our teaching methods more scientific."

The receiving sets used in the radio schoolrooms are marvels of simplicity—battery-powered shortwave receivers manufactured for Accion Cultural Popular by Dutch and American companies. They can be tuned to only one station, Radio Sutatenza, a precaution taken to preserve the life of their batteries. Still on the theory that culture should not be given away for nothing, Accion Cultural Popular sells a set and its batteries to a radio school at cost price, the equivalent of $18. Each school, however, receives a free supply of chalk, an eraser, textbooks and an alarm clock—so that pupils will know when to turn on their set.

These little 4-tube sets put in a hard day's work in the radio schools, most of them nothing more than rooms set aside in adobe homes. The house of the most educated *campesino* in a hamlet is always chosen for this honour, and its owner is given the title of *Auxiliar Inmediato*. It is this "immediate auxiliary" who takes attendance, turns on the radio when school begins, and writes lessons on the blackboard according to instructions given him by the unseen radio teacher. He is one of the key men in Accion Cultural Popular, this remote-controlled teacher. The auxiliaries are always the farmers with the most modern ideas in their communities, and the distinction of leading the radio schools lends them even greater influence as forces for bettering the villages.

Programmes begin at ten minutes to six in the morning, the only time that most men can spare from their fields. Depending on the day of the week, the morning programme of one hour and twenty-five minutes consists of classes in reading and writing, hygiene, history, religious instruction or civics, always *(Continued on next page)*

t of a Colian farmer—for an early morning Cultural lar, goes on the air at 6 a.m., the only time that busy farmers can spare from their fields, but repeats its lessons later in the day. Heads bent over their notebooks, old and young work conscientiously. School is a serious business. (Unesco photos.)

Don Quixote of the Radio *(Continued)*

followed by a news broadcast. This programme is recorded on tape and repeated at 3.50 p.m. for women and again at 5 p.m. for any men who might have missed the morning class.

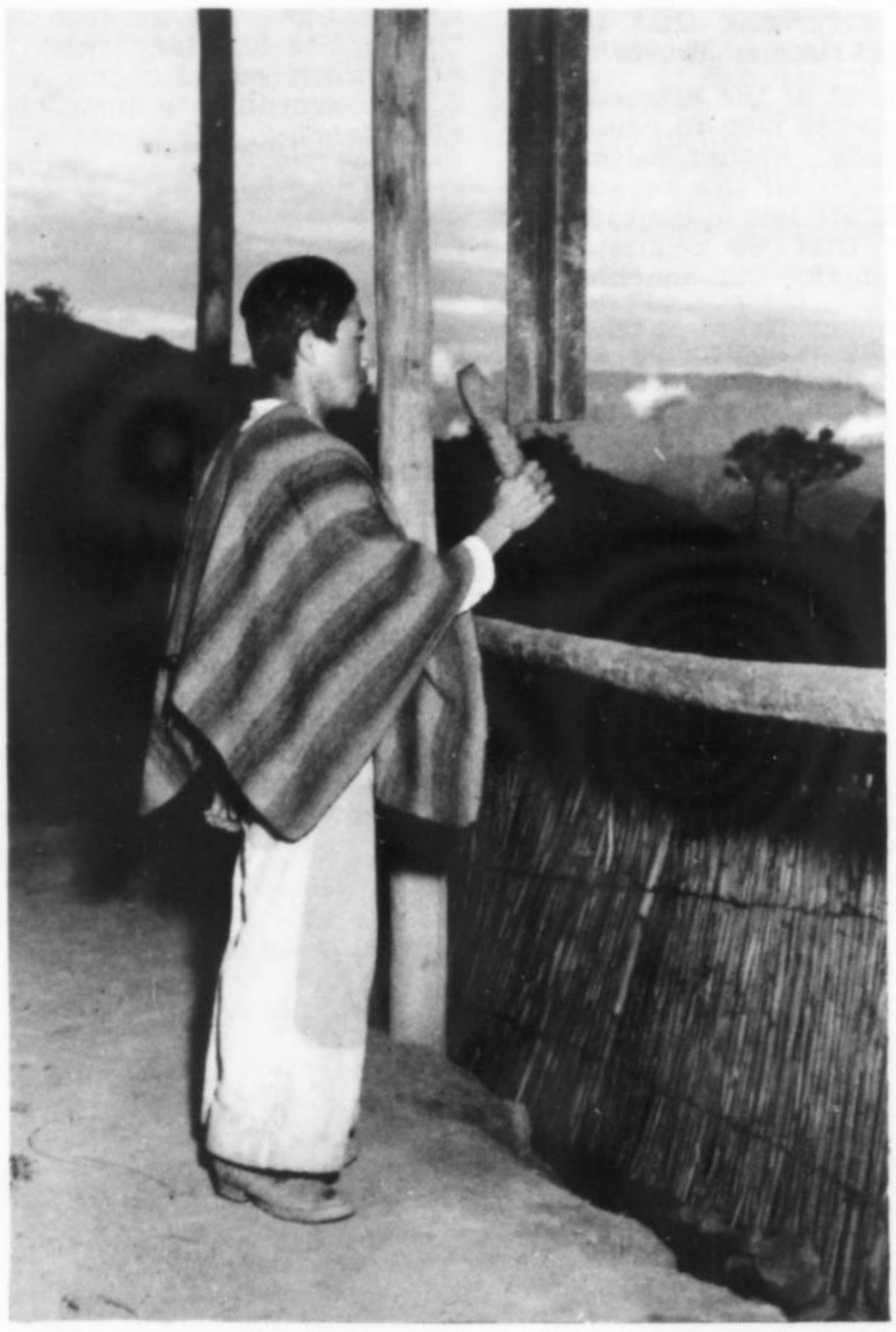
In the evening, Radio Sutatenza is on the air from 6.15 p.m. to 9.p.m., but school is over. Then it offers music—both classical and popular—news, variety shows, religious talks and a half-hour's drama on the theme of history, science, travel in Colombia or problems affecting farmers.

When I visited two members of Unesco's technical assistance mission in Colombia, Brother Fulgencio and Brother Idinael, both Brothers of the Christian Schools, they were working on posters to be distributed to the several thousand class-rooms which now constitute the radio school.

The studio itself suggests a school, but one without pupils. This is only normal, for its classes are as far as 600 miles away. Even in the adjoining parish of Tibirita, the schools are not very accessible except by jeep. There is no easy guided tour to a radio school.

At 4.30 on a drizzling morning, Brother Idinael and I were sharing a thermos of coffee by candlelight in his workroom. We had an hour's jeep drive ahead of us to the Gusvita Radio School, 13 miles away. We did not have much time to linger over breakfast, because school began at ten minutes to six.

We arrived with a few minutes to spare and left the jeep on the road. I followed Brother Idinael down a slippery path, scarcely wide enough for two persons. We saw an adobe farmhouse with a radio antenna strung from two rough-hewn poles next to it and a basketball court in an adjoining field (virtually every school has a court—one has even asked Radio Sutatenza how to go about buying a generator so that it can play night games). The sound of a bell carried over our heads and into the hills. As we drew near, we could see a young farmer earnestly striking a one yard length of railway rail hanging from a low branch—the school bell used in every one of Colombia's radio schools and the most inexpensive one available.



SCHOOL BELL AT DAWN: "The sound of a bell carried over our heads and into the hills. As we drew near, we could see a young farmer earnestly striking a one-yard length of railway rail hanging from a low branch—the school bell used in Colombia's radio schools."

Alfredo Segura was the *auxiliar inmediato* of the Gusvita School. At 21, he is typical of the young generation of Colombian farmers trained in the government's rural extension courses. He was fiercely proud of the school; to make room for the class, he and his family had all moved into the other room of their house. The benches and the blackboard were his own work. The young auxiliary was doing missionary work himself to help his neighbours vaccinate their cattle and spray their fields with fungicide.

We asked him if life had changed at all for nearby families since the radio school opened in 1953. He smiled.

"Everyone likes it except the *tabernas,*" he told us. "People always used to live by themselves here, but now we get together. We feel that we belong to a village. People go to school now or play basketball. Before, everyone used to get drunk, especially on Sundays."

By now, the class was beginning to arrive. There were no tardy scholars. They filed into the house in silence, 22 in all, and sat down at their benches; the children scattered among the adults (children attend certain radio schools in villages too far removed from any ordinary school). Mr. Segura turned on the radio. After a short wait, it came to life with a morning message from Accion Cultural Popular. Then the voice of a distant teacher filled the little room lit by the half-light of the morning.

"Auxiliaries and pupils of the Radio Schools of Colombia, please let us have your attention... We are now going to open our reading class for beginners... Auxiliary, clean the blackboard and be ready with your chalk and eraser... Pupils, prepare your textbooks, open your copybooks at to-day's lesson... Auxiliary, go over the lessons."

The voice stopped and, for a moment, an interlude of music came from the radio. Then the voice returned to the room:

"Pupils... open your copybooks... hold your pencils at the correct angle... Now write what I dictate to you... Auxiliary, write the same on the blackboard... Write... in small letters... ca... Now write... co... faster, a little faster... now all write the last one... cu..."

The music returned and the voice told the auxiliary to correct the work of the pupils. The lesson went on for fifteen minutes. Then, advanced pupils were asked to open their books. The class speeded up, there were fewer interludes, and it concluded with a short history lesson. This was followed by a talk on agriculture and then the morning classes ended with the news.

The sight of this class obeying an unseen teacher was uncanny. Every time the music began, every head bent down over every desk. Pupils worked conscientiously without a whisper or a nudge. School was serious business for these people.

Campesinos are now familiar with their radios, but they do not take the radio school for granted. I had heard from Father Salcedo about an early campaign to better housing conditions. While on the road to Tibirita with Brother Idinael, I saw houses with whitewashed walls and tiled roofs dotting the valley, and many of them had windows.

The introduction of contour ploughing in the Andes has been the goal of another radio campaign and the deadly vertical furrows in the mountains, nothing more than spillways for rain, are slowly beginning to disappear. At the Rosales school near Sutatenza, Brother Idinael asked the auxiliary if he had noticed any improvement since he began his contour ploughing. He told us that he had only begun this year, but he could already see a difference.. "Now, when it rains, the land stays in one place."

It would take weeks to obtain a complete picture of the results of the radio schools in Sutatenza Parish alone. The isolation of the mountaineers made it possible for Accion Cultural Popular to win them over, but it also renders ridiculous any attempt to keep track of the work through an

Never too old...

Afternoon classes at the village radio schools are usually attended by the women and children, for at this time of day the men are busy in the fields. Here, an old lady follows the lessons by writing on the blackboard. From first lessons in writing (the correct way to hold a pencil) pupils soon progress to reading. Broadcasts cover lessons in agriculture and home economics and talks on history or geography. As the villagers learn to write, they write letters to Accion Cultural Popular thanking the school for helping them or asking all kinds of advice. The radio school helped to break down rural isolation in Colombia.

ordinary system of school inspection. In the Andes of Colombia, Radio Sutatenza may be all that a *campesino* ever hears of the rest of the world.

But the *campesinos* learn to write and they write letters to Accion Cultural Popular. The letters pour in at the rate of 150 a day and they are a useful key to the popularity of various programmes. They also show how deeply the radio school has penetrated the inaccessible world of the *campesino*.

They write about everything. Some thank the school for taking them out of their solitude or for weaning husbands away from *tabernas*. And some ask practical, down-to-earth questions: what's good for a bad grippe, how do you cure a lame horse, how should a common-law couple go about marrying, what can be done about a disobedient daughter, how can children be educated if there is no school available, how does a wife get money out of a stingy husband. Every letter receives a reply, although Accion Cultural Popular does not pretend to have a solution to every question.

Nor does anyone maintain that a radio set in an adobe hut is a panacea for the *campesinos'* intellectual and moral ills. After a few days in Sutatenza, you are bound to hear the story of how one of the parish's most conscientious *auxiliares inmediatos* lost his temper one night on the mountain and mauled a neighbour so badly that his victim had to be hospitalized. The auxiliary was sentenced to serve two years... and there is now a radio school at nearby Guateque Prison.

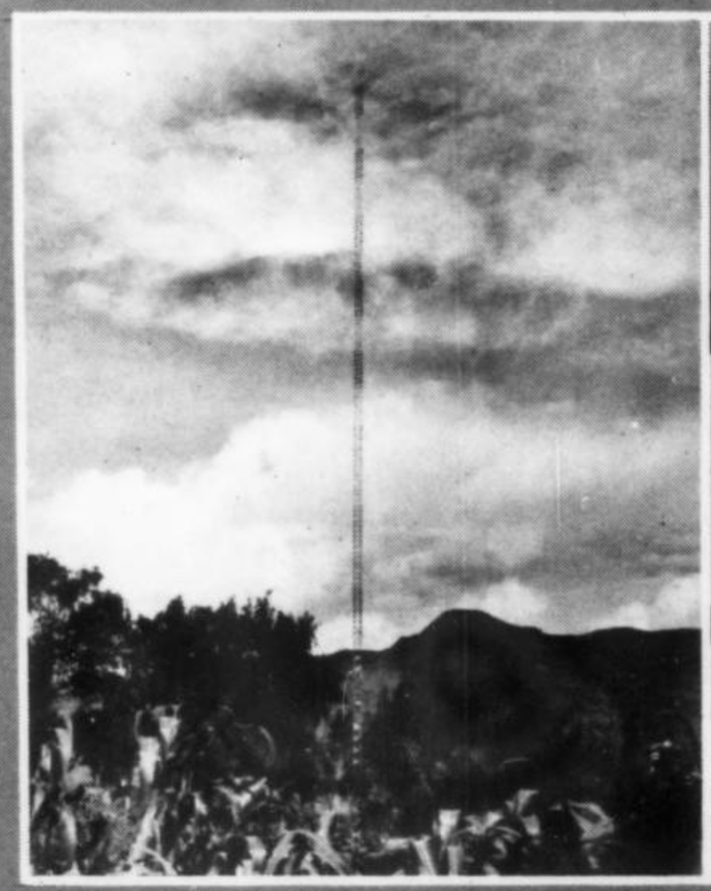
There are only 90-odd miles separating the Tenza Valley from what was once the almost-deserted village of Belencito in the north of Boyaca. In those 90 miles, you pass from an ox-cart agricultural economy to the newest steel mill in Latin America. At Belencito, in the surrealistic shadows of coke ovens, conveyor belts and a 270-foot high blast furnace, Accion Cultural Popular is beginning another experiment in radio education.

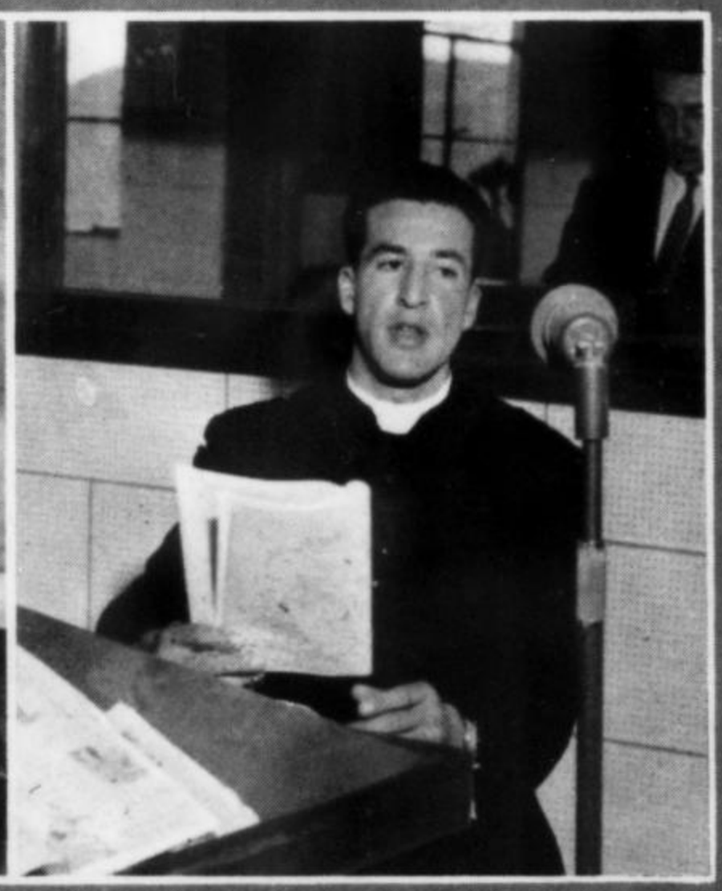
In 1945, Belencito was a wide place on a country road, nothing more than a church and a few huts. That year, geologists were prospecting 22 miles north of Belencito at Paz de Rio in a narrow canyon of the Chicamocha River. They discovered that the canyon was hemmed in on one side by a wall of coal—and on the other by a wall of iron ore. As for the hills overlooking Belencito itself, they were brimming with limestone. In other words, bringing together the raw materials needed to charge a blast furnace and produce iron required the sum total of 22 miles of transport. With this unique endowment, Colombia is now becoming the fourth Latin American country (the others are

(Continued on next page)

Rising towers

Eighty-seven miles north of Bogota, the towers of Radio Sutatenza rise out of an obscure valley to broadcast lessons to pupils as far as 600 miles away. They stand a few yards from the church where Father José Salcedo, founder of the radio schools, made his first broadcasts to his parish in 1947. Classes are now being opened for steelworkers in Belencito, site of the newest steel mill in Latin America. This radio school for a mill town is in the hands of Father Alejandro Rodriguez (right). In 1951 Father Rodriguez studied the use of radio in adult education on a Unesco international fellowship which took him to Canada and Europe. (U.N. and Unesco photos.)





ROCKET fired by Father Salcedo signals the start of a play at his Cultural Theatre.

Standing Room Only in the village theatre

VILLAGERS of Sutatenza queue up to see plays which educate and entertain

Brazil, Chile and Mexico) to join the ranks of the world's producers of steel. The Empresa Siderurgica de Paz de Rio, scheduled to be in production by the end of 1954 will have 3,000 workers in the Belencito steel mill and 2,000 more in the mines of Paz de Rio. The sun-baked hamlet of Belencito still stands, but it is a museum piece inside the 4,000-acre enclosure occupied by the plant.

The conversion of Colombian raw materials into iron and steel is only half of the story of Belencito. Equally dramatic has been the conversion of *campesinos* into steel workers. When the mill goes into production, its labour force will be almost entirely Colombian and recruited from the sleepy farm villages surrounding it. Financed partially by the Colombian Government, the plant has trained its own workers. But its personnel problems will not end when shifts go home for the day. Near Belencito, a worker's city is going up for married men and their families. If the men are to make the transition from the hoe to the rolling mill, their wives must adapt themselves to an entirely new sort of life—that of an ordinary modern community.

To pave the way for this adaptation, the company has enlisted the aid of Accion Cultural Popular which has assigned to Belencito its former programme director, Father Alejandro Rodriguez, the first collaborator of Father Salcedo in the radio schools of Sutatenza. Father Rodriguez is a year younger than the Director of Accion Cultural Popular, an institution where youth decidedly has its say. At 32, he presents the same fusion of philosopher, technician and priest as his director and closest friend, although he bears no physical resemblance whatsoever to him. Father Rodriguez is tall and husky, and his deeply sun-burned face contrasts with the near-ascetic pallor of Father Salcedo. Both men, however, share a fascination for fast driving over mountain roads—a national pastime in Colombia. If it were not for Father Rodriguez, Father Salcedo would be the undisputed holder of the Sutatenza-Bogota record.

Father Rodriguez first went on the air in 1949 when Father Salcedo was called away on a trip to the United States and,

VOLUNTARY HELP built the theatre in 1948 following an appeal broadcast by Father Salcedo. The priest promised to record the voice of every man who aided him. Soon he was broadcasting the farmers' own voices back to their families and 60 men a day were coming to work. There is always a "full house". (U.N. photos.)

LIMITED SEATING for only 500 people does not prevent as many as 700 from crowding theatre for film shows or plays. Even after all seats are taken, latecomers still pack the entrance for a glimpse. (U.N. photos.)

even though he had had no radio experience, he took over Radio Sutatenza successfully for a month. Then, in 1951, he received a Unesco international fellowship to enable him to study the use of the radio in adult education in Canada where he worked under Dr. J.R. Kidd, Director of Adult Education at Toronto. Dr. Kidd gave the priest a thorough view of what Canada had been able to accomplish. For two months, Father Rodriguez worked at Antigonish, Nova Scotia, observing radio techniques in public service in a hard, bleak country living on poor soil. Then, after visiting Laval University in Quebec where he studied the organization of credit co-operatives for farmers, Father Rodriguez spent three months in Toronto watching the Farm Radio Forum of the Canadian Broadcasting Corporation in operation.

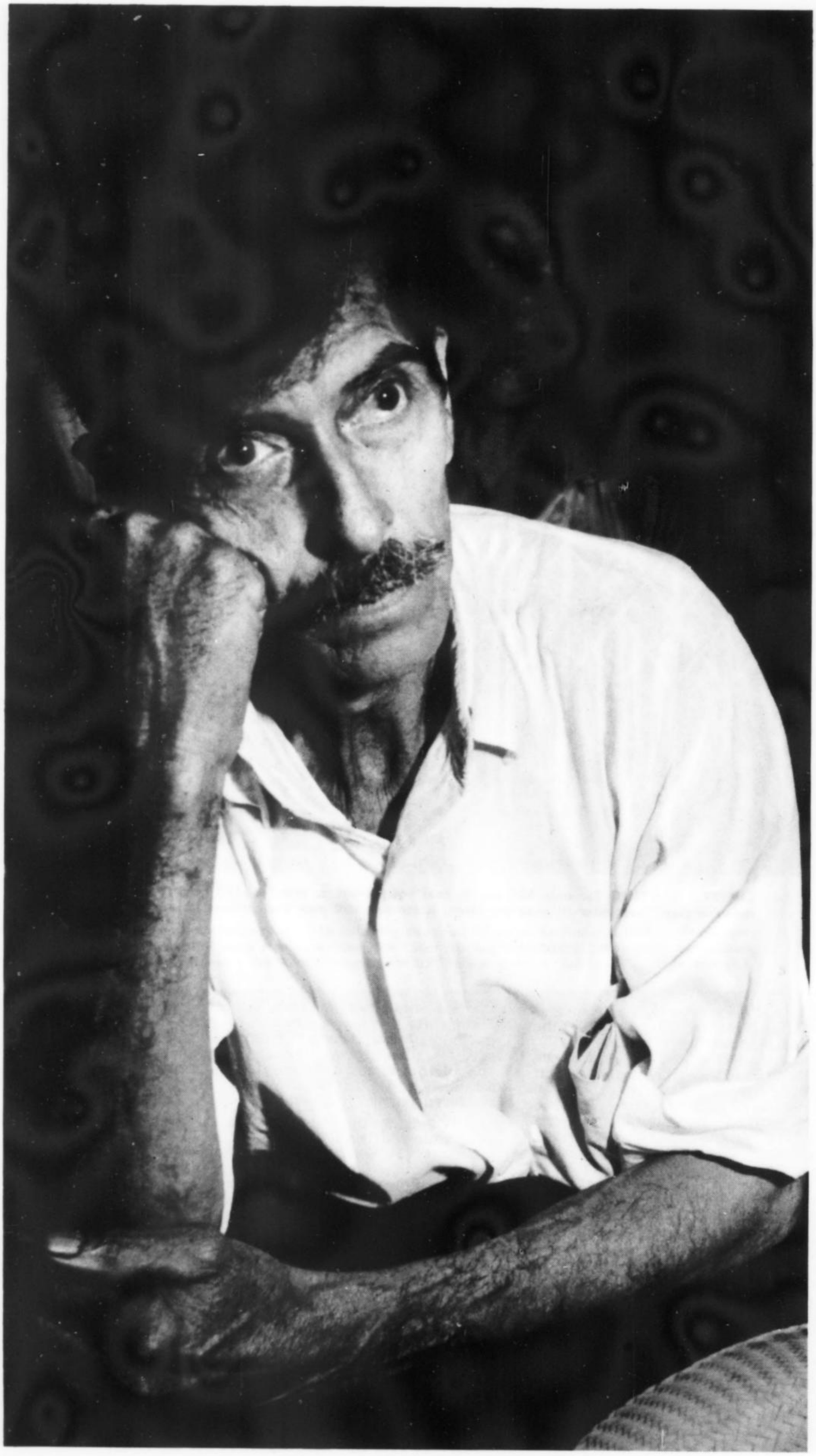
"Canada taught me a great deal about the orientation of our radio schools in Colombia," Father Rodriguez told me. "We want to be able to broadcast a Farm Radio Forum ourselves, but you have to assume a certain degree of education among your listeners before you can put on such a programme. We have a long job of fundamental education ahead of us; in the end, we hope to reach the point where the Canadians are now. More than anything else, Canada convinced me that we were on the right track."

Following his stay in Canada, Father Rodriguez travelled to Spain, France and England, concentrating on the organization of broadcasting and on its technical side. Then he went back to his microphone in Sutatenza until early in 1954 when he left to direct Radio Belencito. Father Rodriguez is starting on a modest scale in the new mill town with a 1-kilowatt long-wave transmitter and 200 receivers. The purpose of long-wave transmission is to enable owners of private radios to hear school programmes. Radio Belencito will fit into a new network of long-wave transmitters being established by Accion Cultural Popular at seven widely scattered points in Colombia.

Although Radio Belencito will retransmit certain basic programmes of Radio Sutatenza, its objectives are not quite the same. In Belencito, Father Rodriguez intends to use the radio to help mould a colony of *campesinos*-turned-steel workers into a living community. Besides its classes, Radio Belencito will broadcast programmes for neighbourhood centres in the steel town. The radio will serve the community as theatre, orchestra and forum and, to supplement it, spare-time teachers will be trained as neighbourhood leaders—the urban version of the *auxiliar inmediato*.

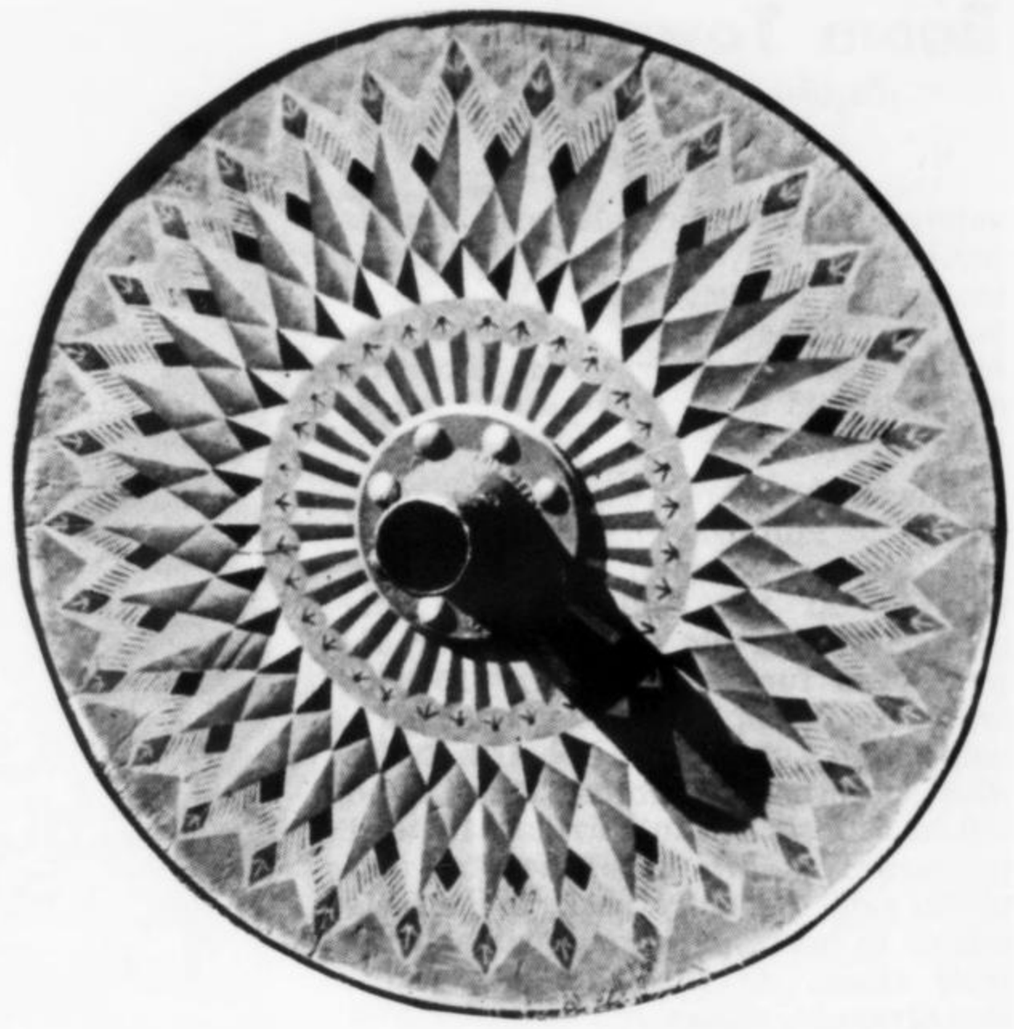
Radio Belencito also will produce a regular series of programmes to tell the story of iron and steel. The purpose of these shows is to give workers a clear idea of how their jobs fit into the complex pattern of steel production.

"Fifty per cent of our workers are illiterate," an official of the Belencito plant told me. "They learn quickly and their mechanical aptitude is high, but we want them to understand what they are doing and why they are doing it. This is extremely important to them—and to us. The Colombian economy needs this steel mill and we want our workers to be integrated into this new aspect of our economy."



PENSIVE FARMER reflects on changes for the better that have come to his valley. Here, with other Costa Rican farmers, he listens to speaker at a community development meeting which decided to provide funds and manpower for public works. (Unesco photo.)

BOOM TOWN on the Pan-American Highway



PEASANT ARTISTS of Costa Rica decorate their oxcarts with intricate traditional designs painted in vivid colours. Patterns on wheels, like one shown here, form a brilliant kaleidoscope as the carts move along. (Photo Dr. Esteban de Varona).

ON a road map of Central America, the Pan-American Highway stands out as the main artery flowing through nearly the entire length of the Republic of Costa Rica, whose total area is only 20,000 square miles.

The highway enters Costa Rica from the north at the Nicaraguan border, crosses the tropical northern provinces, climbs up to the rich tableland surrounding San José, the capital, and then winds through alpine scenery until it reaches San Isidro del General, its present southern terminal.

Before this last section of the road was opened in 1948, it took three days on horse-back, over the steep paths of the Cordillera de Talamanca, to cover the 85 miles separating San José from San Isidro and the green Valle El General. The people of the valley lived isolated from their fellow-countrymen, and in many regards they were abandoned. But the highway has changed all that. Back in 1948, San Isidro, "capital" of the region, consisted merely of a few farms and a big weather-beaten church with a strange Moorish steeple painted bright-red. Today, it is a prosperous little town with 5,000 inhabitants.

At all hours of the day, horsemen, ox-carts, tractors, jeeps, trucks and cars jam its unpaved streets. Frame houses have sprouted up like the coffee, maize and sugar-cane in the rich soil of the valley. There is a big market under construction, a handsome new primary school for 700 children, an abundance of shops and cafés, and even an agency hiring out auxiliary-engined bicycles which lends a strange European air to this boom town in the heart of Central America.

Outside the town is one of the busiest airports in Costa Rica. Single-engined planes fly 30 scheduled flights a day in and out of San Isidro, mainly hauling crops, livestock and passengers from outlying valley villages to the terminal of the highway. In San Isidro, it is possible to sit down to lunch and eat a plate of beans grown by a farmer who still uses an ox-drawn plough and transported by air to a few hundred yards from your restaurant table.

This is the key to the dilemma of the Valle El General : it has developed so fast that all phases of its development have not been able to maintain the same furious pace. The soil of the valley is rich, but there are not enough roads over which to haul the produce to market. Bridges are scarce and those that do exist cannot take heavy loads. Farmers are relatively well off —the per capita income of Costa Rica is one of the highest in Central America—their crops have grown faster than new schools for their children, pure water supplies for their homes, electricity for their villages and health services for their families.

It was this contrasting picture of prosperity and primitive conditions which led the Government of Costa-Rica, early in 1952, to select the Valle El General as one of the two zones for a pilot project in rural education (the other being La Lucha, 30 miles south east of San José). "Pilot project", in this case, meant an imaginative experiment in social education, encompassing all the educational, economic, sociological and health factors that were hindering the progress of the zones. To organize the experiment, the Costa Rican authorities were assisted by two members of an educational mission sent into the country in 1951 by Unesco under the United Nations technical assistance programme : Adrian Cruz Gonzales, a United States citizen from Puerto Rico, and Max Minano Garcia, of Peru.

Their official titles were "specialist in primary education" and "expert in rural education". But the farmers of the Valle El General simply refer to them as "los Unescos" and Mr. Cruz enjoys telling the story of the day when a farmer hailed him from a nearby field. The man did not know his name. He simply called out : "Unesco!".

Working in the two zones, Mr. Cruz and Mr. Minano have refused to make any pedagogical or administrative distinction between "primary education" and "community development". They maintain, after nearly three years of practice, that it is almost impossible to separate the two; that rural living standards cannot be raised without improving village schools and, conversely, that schools cannot be improved without enlisting the wholehearted help of the communities.

The results of this fundamental education work are as varied as they are unusual : a new steel bridge over the Rio El General, schools, libraries, sports grounds, agricultural centres, water supply systems, roads, radio installations for educational broadcasts, health and hygiene campaigns... It is a complex project, co-ordinated by a network of thirteen pilot villages.

As far as teaching is concerned, there are eleven adult education centres among the thirteen pilot villages, with a total of 300 pupils. Their course leads to a primary school diploma which has a good deal of importance in the valley. In one San Isidro hotel, the owner has proudly framed his own in the dining room.

Besides teaching reading and writing, the centres make life more enjoyable in the

(Continued on next page)

Boom Town

(Continued.)

valley, mainly through encouraging football, volleyball and basketball teams. In El General Viejo, the football fever has caught on to such an extent that the village team takes the field with its members wearing, across their chest, the emblem "Club Unesco."

Villages have participated in campaigns to improve their schools, raising money through lotteries and bazaars. At Los Chiles, the schoolmaster, 34-year-old Cerlindo Alvarado, went even further. In April 1954, he organized not only a bazaar but also a bull-fight—a dangerous sport in Costa Rica... for the bullfighter! There is no kill in a Costa Rican corrida. Instead the toreros swarm into the ring and try to ride the bull's back, to pull his tail or to make dangerous passes with their capes. At this particular fight, Mr. Alvarado, village schoolmaster and father of six children, acted as torero... and he raised a total of 900 colons (approximately 140 dollars) through his efforts.

But there are many other things to do besides fighting bulls. At Los Chiles, Mr. Alvarado's day usually lasts from seven in the morning until ten at night, teaching children and adults. In his spare time, he farms the school lands and wields a hammer and saw as he helps to build additional rooms for his school-house, using lumber bought with the proceeds of his bull-fighting.

Hand in hand with community development over the past two years has come a reorganization of primary education. Preliminary investigations had disclosed that the weakest point in the Costa Rican school system was a shortage of trained teachers. But materials were deficient as well. The average pupil, during his six years in primary school, reads only seven or eight books, learning most lessons by heart.

AMATEUR BULLFIGHTER is Cerlindo Alvarado, a teacher who took to the ring to raise money to build an additional wing for his school. Here he is putting in some practice on a not-so-fierce steer. (Unesco photo).

MIXED TRAFFIC uses main street of San Isidero del General, in Southern Costa Rica. Recently constructed Pan-American highway has brought a boom and prosperity to this little town—and also problems. Community facilities —schools, water supplies, roads and markets—are still lacking. (Unesco photo).

In 1952, Mr. Cruz began to work with his Costa Rican assistant Mr. Bolivar Moya on a plan to strengthen these weak points. They started with 60 teachers and 1,800 children in the two zones of the Valle El General and La Lucha. The following year they expanded their campaign to include 83 teachers and 2,200 children. Then, in 1954, a wave of enthusiasm swept the district and their work was extended to the entire province of Cartago, covering a total of 700 primary school teachers and 20,000 pupils.

The foundation of their plan lay in on-the-job training for teachers already in service. In practice, this had to be translated into an incessant round of seminars, visits, meetings and "teaching-by-correspondence".

Gradually the plan took shape. A new curriculum was drawn up and submitted to teachers and school inspectors for criticism. It took a practical approach, adapting the teaching methods of the school to the realities of Costa Rican life. One example —under the old curriculum, pupils learned how to do sums in dollars and pounds before they were introduced to the Costa Rican colon; in the new system, they begin with weights and measures used in Costa Rica.

At the same time schools have expanded their facilities : playgrounds have been built, books have been bought for their libraries as well as radio receiver sets for listening in to educational programmes. The Minister of Education made a special visit to San Isidro. He was so impressed by the results achieved that it was immediately decided to launch two new fundamental education projects in 1955, one in Turrialba and the other in San Carlos.

The people of the Valle El General are proud of their achievements. These are mainly due to their own drive and enthusiasm. Unesco's technical assistance experts have merely helped to release and to guide this latent force for community development. Yet the people of the valley still pin the label "Unesco" on their schools, their markets, their new bridges and their football teams. The internationalism of this little corner of Costa Rica is amazing. In San Isidro's new primary school, built by the Government, each classroom bears the name of a Latin American republic— and the assembly hall is called "United Nations Room."

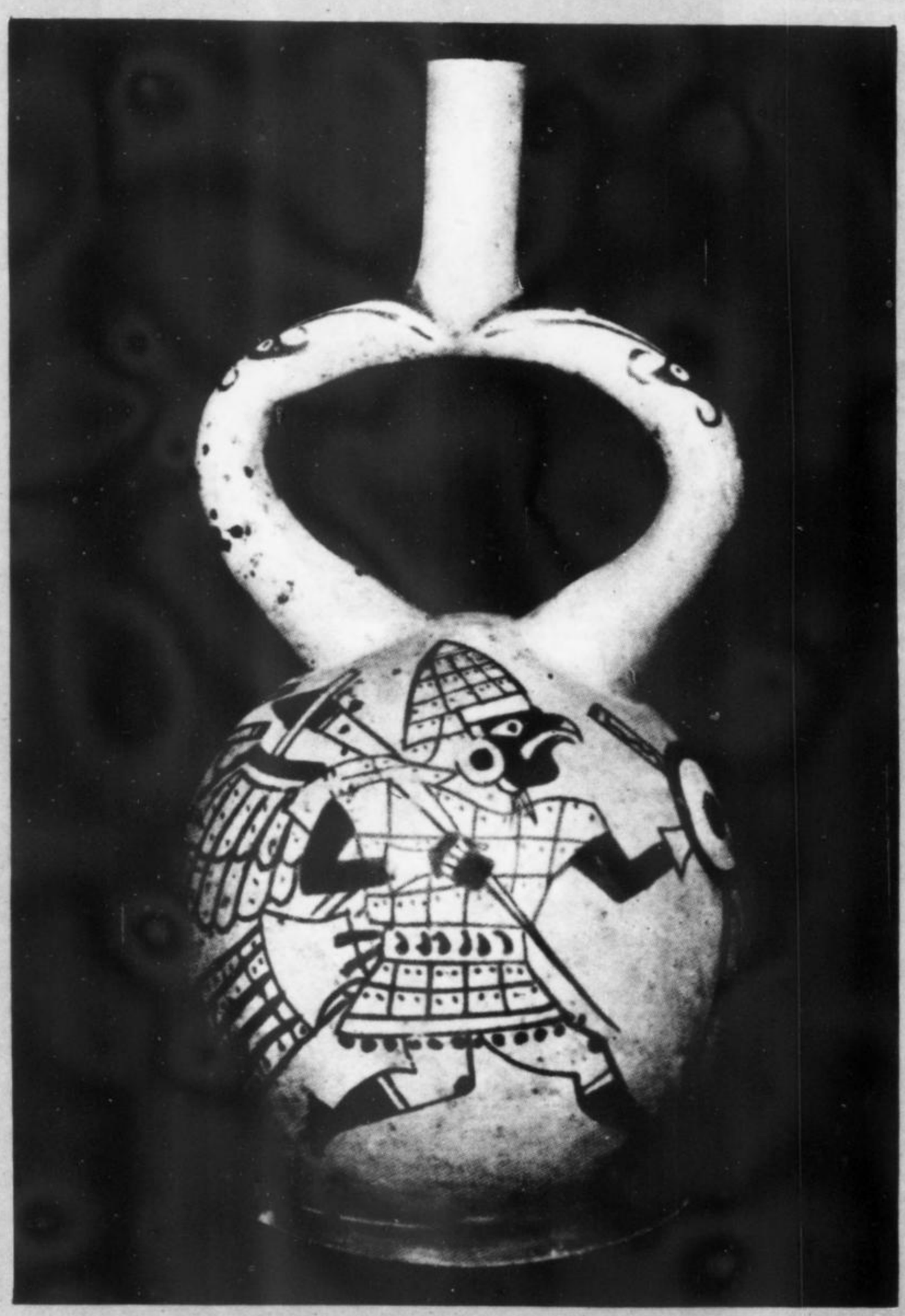
Fabulous record of ancient Peru

ON LOOKING INTO A MOCHICAN URN

by

Jorge Carrera Andrade

All the photos of ancient Peruvian Art on the following pages and on page 36 are published by courtesy of Nathan Cummings.



WINGED WARRIOR on stirrup-spout vessel. Figure is painted in red on a cream-yellow background—two colours most commonly used by the Mochican potters.

THE little Peruvian port of Trujillo lies perched on a shallow cliff beside the valley where the Moche river cuts its way through to the sea. Behind the town the baked brown landscape is dotted with yuca, bean and pumpkin plantations. Away in the far distance, cooler to the eye, the Andean peaks loom in the sky, their snow-covered summits glittering.

Here, in the Central Andean river valleys of the Moche, the Chicama, the Viru and the Santa, for a period of more than five hundred years at the dawn of the Christian era the Mochican civilization grew, flourished and was finally almost obliterated. Little remains today except the stories and history portrayed by the Mochican ceramists on the jugs and vases which they have left behind.

Ceramics was the dominant craft of the Mochicas, and in this they made a greater advance than was to be found anywhere else in South America during that epoch. The achievements of this civilization are those of a people having ample leisure to develop highly specialized skills, and at the same time enjoying security from both internal strife and external aggression. Food was abundant and the valleys were rich in raw materials such as fine quality clays and easily worked copper, gold and silver ores. But little is known of the political, social and religious institutions which gave Mochican society its stability. Fortunately their realistic ceramic art, supported by other archaeological evidence, offers the most complete pictorial document left to us by any prehistoric American civilization.

(Continued on next page)

The degree of artistic perfection

ON LOOKING INTO A MOCHICAN URN

(continued)

achieved by these master potters and the practical character of the Mochican pitchers, jugs, carafes and vases are astonishing. The craftsmen modelled everything which captured their imagination —men and animals, birds, fruits, vegetables and the humblest objects of everyday life.

The genius which lay in the hands of the Mochican ceramists created a fascinating panorama of art in which there are many scenes representing the life led by this ancient people. Describing some of these varied works, Alan R. Sawyer, of the Art Institute of Chicago, has written : "We meet dignified leaders, stalwart soldiers and humble craftsmen, blind men, cripples and men ravaged by disease. We can watch heavily-laden llamas and see balsa rafts propelled across rippling waters. A frog stares out of heavy-lidded eyes. An owl sits holding a wriggling field mouse in his beak, a king-fisher alights holding a freshly-caught fish, and a small sparrow searches for his food among the corn stalks. We can see a doctor tending his patient and a mother caring for her child."

Unquestionably the result is a fascinating record of the craftsman's real and imagined world, and also of the whole civilization which flourished at that time.

The Mochicas devoted themselves to agriculture, the building of aqueducts and the plastic arts. But prior to their advent, more than two thousand years ago, an even older civilization, the Cupisnique, flourished in the same river valleys. It produced earthern vessels with horizontal, stirrup-shaped handles mounted over the neck. This Cupisnique pottery was made from rough clay with orange colouring and adorned with religious symbols such as the cat—the supreme deity. Then came the Salinar civilization which introduced ceramic painting. Blood-red and cloud-white colouring together with animal motifs lent an element of drama and realism to these primitive ceramics. The Salinar school represented a technical advance in the working of clay and baking in open kilns. Evidence of this can be seen today in the Archaeological Museum at Chiclin where the results of the excavations made in 1941 by Larco Hoyle in the Upper Chicama valley are on view.

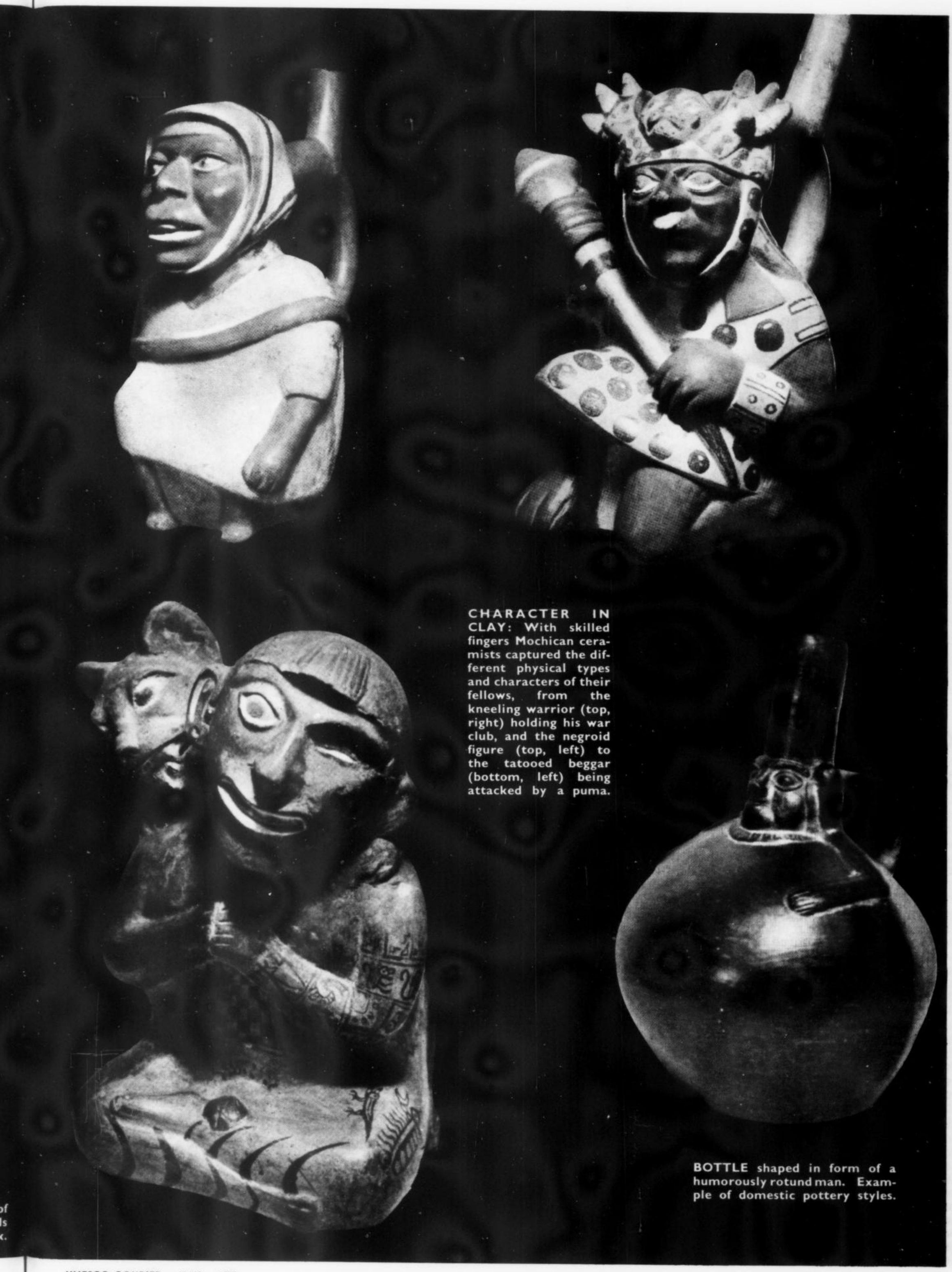
The early Mochican ceramics show naturally enough a strong Salinar influence but up to the year 600 A.D. the Mochican craftsmen developed and improved their work. Their imaginative paintings went beyond material things and illustrated their ideas of a spiritual world and an after life. This creative thought was radically transformed about the year 600 when the whole existence of the Mochicas was at first threatened and eventually engulfed by the Tiahuanaco people who swarmed out of the southern highlands where the borders of Peru and Chile now meet.

The arts, agriculture and the pursuits of peace fell into decay and gave place to military pursuits. The ceramic motifs lost their naturalness and became even more abstract in character. The objects protrayed were stylized in cold intellectual attitudes. The Tiahuanacos, who finally overran the whole of the Moche country, brought with them a massive, geometrical type of pottery which today would be called cubist.

The standards set by the Mochicas did not disappear. After three centuries they flowered once again in the ceramics of the Gran Chimu. The Chimu civilization with its twenty river valley settlements, its tremendous brick wall and *(Cont'd on page 30).*

DREAMER: Stirrup-spout vessel moulded into the hunched-up figure of a dreaming man.

THINKER: Sitting figure of white-bearded old man recalls some Oriental ceramic work.



CHARACTER IN CLAY: With skilled fingers Mochican ceramists captured the different physical types and characters of their fellows, from the kneeling warrior (top, right) holding his war club, and the negroid figure (top, left) to the tatooed beggar (bottom, left) being attacked by a puma.

BOTTLE shaped in form of a humorously rotund man. Example of domestic pottery styles.

PORTRAIT VESSELS with handle spouts often depicted the features of a dead person—the Mochican equivalent of a "death mask"—and were placed in tombs for use during the "journey to the next world."

CHALICE shaped like a fox's head is combined with a rattle in handle.

ON LOOKING INTO A MOCHICAN URN

(continued)

strong-points designed for defending the forty mile-long southern frontier and its awe-inspiring capital of Chan Chan, succumbed in its turn to the military power of the Incas in the second half of the fifteenth century.

The multiform pitchers and other vessels characteristic of the Chimu period, and the coloured ceramic work of the Tiahuanaco era were replaced by the larger jars and vases of the Incas. For a hundred and fifty years the Incas extended and consolidated their empire. Under their benevolent despotism local cultures continued to flourish and high technical artistic standards were maintained. In 1532 the impact of western civilization brought native Andean culture to an abrupt end.

Throughout this disturbed period of history art reached its highest expression in the work of the Mochican potters. Their work challenges comparison in quality of line drawing with the pottery of classical Greece, and in ceramic sculpture with the tomb figures of ancient China. The large number of Mochican pieces which have come down to us suggests that their pottery was an art practised by almost an entire people.

The Mochican funeral ceramics portrayed every scene and episode of human existence in order that the dead man should remember, in after life, his own activities on earth. Tombs have yielded hundreds of vessels of every form, adorned with human figures performing the most menial duties of everyday life, each in its way a record of history.

It is in this manner that the story of Mochican civilization has been brought to life.

Each vessel in this chronicle of clay represents a scene which enables us to follow the life of a Mochica from birth to death. One vase may portray a house, another a family, while a third may show people eating, sleeping, making love or attending a funeral.

Life then was one of abundance. The humbler people are shown as fishermen or farmers while the warrior-nobles are depicted pursuing the deer and the most extraordinary birds whose savoury flesh later bedecked the banqueting tables. The paintings of religious scenes are characterized by a wealth of ornaments, bells, rattles and trumpets, together with a variety of costumes, coats of mail and plumed helmets. Crowds climb the winding path to the temple on the hill and there prostrate themselves before Ai-Apec, the god in jaguar form, lord of the animal kingdom and the defender of the people.

No facts or details have been forgotten by the craftsman, and his work is executed with the scrupulousness of the true historian. The customs, beliefs and social structure of the Mochican people are displayed here for all to see. Their predilection for ancestor worship and their belief that death was a voyage to another unknown world, are clearly shown. Legends, such as The Flood, are seen to have been in common circulation.

The Mochicans traded with neighbouring countries and sailed the seas in rafts made from balsa wood. They had a postal system where the couriers carried sacks of painted beans on which were inscribed messages. Medical treatment was given and surgical operations performed. Lawbreakers were severely dealt with, being stoned, or killed by being

ANIMISTIC ART of the Mochicans revealed their skill in capturing the forms and expressions of birds and animals of the Andean region. Two vessels shown here, Toucan (below) and a deer head with human body (right) are from Chimbote Valley.

CHALICE for religious ceremonies shaped like a man wearing a long garment: rare item of Mochican pottery.

thrown from a rock. Apart from their pottery the Mochicans worked in wood, copper, bone and other materials. As can be seen in their ruins the temples were adorned with multi-coloured murals. They were also skilled weavers.

Certain rounded vessels found in Mochican tombs show signs that some "revolving" movement was used in their production and this supports the belief that the lathe, and possibly the wheel might have been used by this people to round off blocks of clay. In any case there is no mystery about the methods of modelling used by the Mochican potters. Having extracted the finest quality clay from the river banks the craftsman would shape and model his figure, drawing on his imagination or from life. The model would then be baked and covered with a fresh coating of clay so as to form a mould—divided into two parts—from which the vessels in their final form would be shaped. Afterwards the potter added the base, the handle and the neck. Then, with a bone spatula—a heritage from the Cupisnique civilization—he would smooth the surface and paint it red.

Subsequently the model was exposed to the air, and then fired in an open kiln to ensure the maximum degree of oxidisation. It was this treatment which gave the characteristic yellowish hue to all Mochican pottery. Finally, the article was re-polished to give it added lustre and was then ready for use.

Often the vessels found in tombs portrayed the dead man in lifelike relief, revealing profound anatomical knowledge and psychological penetration on the part of the craftsman. The myriad forms used in the Mochican ceramics show that their pottery was an imaginative art. The potters were not only marvellous portrayers of animals —witness their life-like frogs, their comic birds, their powerful stags' heads or their formidable sea monsters—but they were also thinkers and poets.

The symbol of wings was used to give the idea of speed; the demon of drink would be used to portray rapture; erotic scenes would convey the ideas of fertility and death. Messengers and couriers were shown as humming birds in flight; an old woman became a hallucinating owl, and a motionless owl an idiot. Phantom-like fauna weaved in the depths of the sea. Woman, as a mother, was shown standing between a newly-born infant and a skeleton. From the mountain to the snail, from the whale to the mollusc the entire Mochica world has been brought to life through its ceramic art.

The art of the Mochicas can still be seen today in the Nathan Cummings Collection of Ancient Peruvian Art, part of which has recently been on exhibition at the Art Institute of Chicago. Some 200 selected items were exhibited—the first public showing of the collection anywhere in the world. This collection, comprising some 1,500 objects, including pottery and articles in gold, silver, bronze, stone, wood, bone and other materials, is one of the most important groupings of ancient Peruvian art outside Peru. Its exceptionally large and representative group of Mochican ceramics is outstanding, and presents a vivid record of the evolution of this remarkable civilization.

Unfortunately, the peoples of ancient Peru did not possess a system of writing or a calendar with which to record their history. The Spanish chroniclers showed only a limited interest in preserving the oral traditions which had survived. Consequently the story of the Mochicas and other early Andean cultures were all but lost in the looting of graves which took place after the fall of the Incas. Modern archaeologists are still today confronted with many unsolved problems. Laborious work has yielded some of the story of the Mochicas but there is still much more hidden which remains to be uncovered in the future.

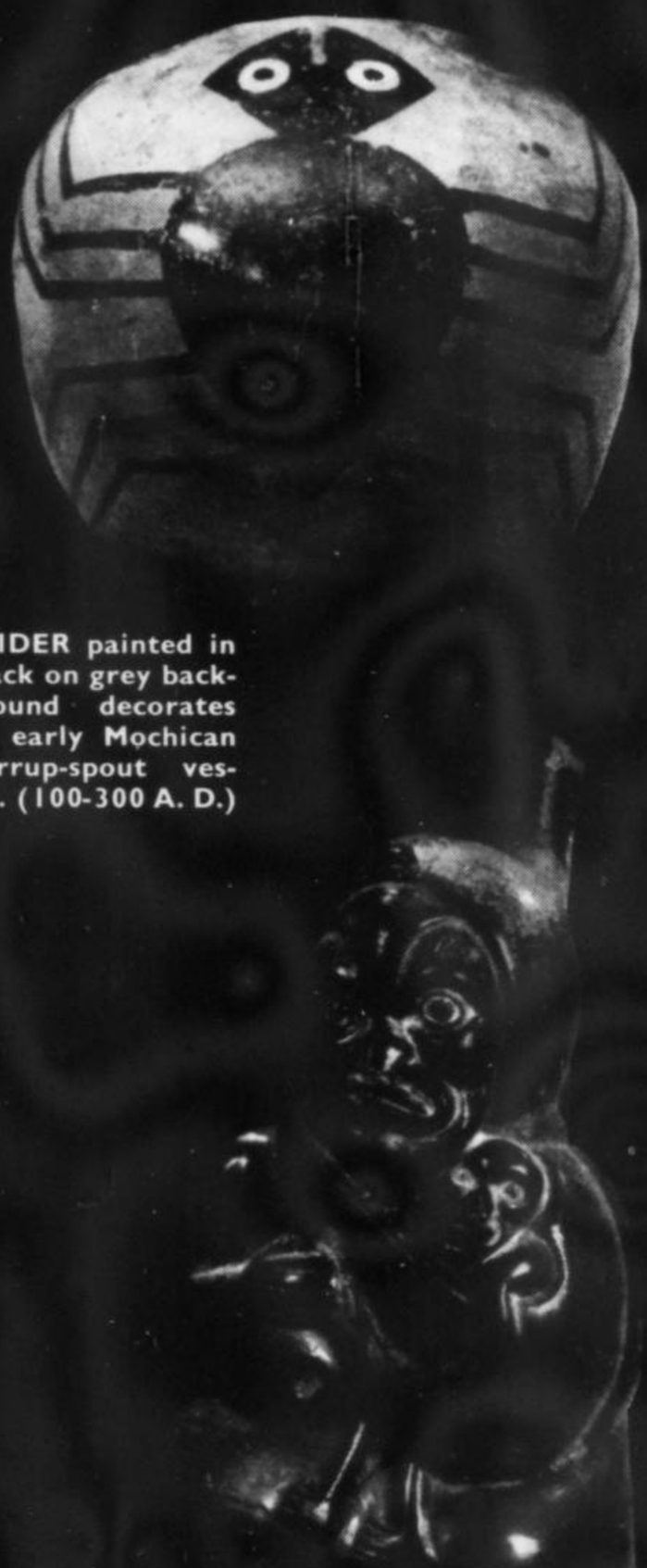
PANORAMA OF LIFE – AND OF DEATH

(Continued)

LOVE: Detail of a vessel showing a man and woman in an affectionate pose. Fertility and death were incorporated by the Mochican people in a strange erotic cult.

DEATH: Detail of a vessel depicting two shrouded and eyeless figures seated atop a drum shaped vessel. Early Mochican work found in the Santa Valley (200-400 A.D.)

CAPTIVES: Surrounded by guards prisoners are marched away. There is hardly an aspect of daily life that has not been reproduced in the pottery of the ancient Mochican artists.



SPIDER painted in black on grey background decorates an early Mochican stirrup-spout vessel. (100-300 A. D.)

DEAD CHILD is held in a sling by Death on this black jar found in the Santa Valley (200-400 A. D.)

From the Unesco Newsroom

MR. TOR GJESDAL who has been principal director of the United Nations Department of Public Information in New York since 1946 has now taken up a new post as director of UNESCO's Department of Mass Communication. Mr. Gjesdal was born at Dyvaag, Norway, in 1909. He studied law at the University of Oslo, and journalism in different European countries. He was a foreign correspondent and a war correspondent in Western and Eastern Europe, North Africa, the Middle and Far East and Indonesia for Norwegian newspapers from 1929 to 1940; press officer of the Norwegian Army High Command in 1940; press attaché of the Norwegian Legation in Washington, from 1940 to 1941; director-general of the Norwegian Government Information Services in London and Oslo from 1941 to 1945; diplomatic correspondent in London from 1945 to 1946; and principal director of the United Nations Department of Public Information in New York since 1946.

★ **TRANS-ATLANTIC TEACHERS:** *A new kind of teaching job was created recently — that of educational director on trans-atlantic ships sailing between New York and European ports. Appointed by the U.S. Council on Student Travel, these directors will work with students travelling on vacation time tours and will help to introduce "first-time" travellers to Europe to the cultural, social and political background of countries they will visit.*

PROTECTING MAN'S HERITAGE : Fifty nations have now signed the Hague Convention for the Protection of Cultural Property in the Event of Armed Conflict. Prepared by UNESCO and adopted at an international conference in May 1954, the Convention sets up what amounts to a "cultural Red Cross" under which works of art, monuments and historic buildings would receive similar protection as is now given to hospitals, ambulances and medical personnel in time of war. (See UNESCO Courier, Nov. 1954.)

★ **FROM SCHOOLS TO SCHOOLS :** *Dutch schoolchildren collected a total of 10,400 florins (about $ 2,900) to provide gifts for schools in India, the Gold Coast and Libya, in recent months. They obtained the money by selling UNESCO Gift Coupons — a form of international money order which can be sent as a gift to educational and cultural institutions in other countries.*

WORLD ANTI-POLIO NETWORK: A round-the-globe network of research laboratories to study various polio strains is being set up by the World Health Organization of the United Nations. Scientists will seek to develop control measures applicable to different parts of the world. A report on the latest facts known about the disease and statistics on its frequency are being published by WHO.

★ **CRIPPLED CHILDREN:** *Over the past 18 months, visitors to United Nations headquarters in New York have contributed $ 31,600 to help Korean children by buying gift stamps issued by Unesco at a sales counter in the lobby of the General Assembly building. The money is being used to equip a special ward at a new centre for handicapped children being built by the American Korean Foundation and the UN Korean Reconstruction Agency. The ward is expected to be ready for use in late summer.*

U.S.S.R. LANGUAGES : Sixty vernacular languages are used in teaching in the U.S.S.R. In the Russian Soviet Federated Socialist Republic alone, forty-four languages are used in the schools. The Russian language is taught in all schools in the Republics of the Soviet Union not later than the third year of compulsory education.

★ **TOO FEW SCHOOLS :** *More than half of the world's children do not attend school. In a single region — South Asia and the Pacific — 55,000,000 boys and girls of school age out of a total of 95,000,000 are deprived of any chance of schooling. Educational leaders from 15 countries in this area met to discuss this challenging problem at a UNESCO-sponsored conference in Bombay. The educational situation revealed by the conference and the proposals put forward for meeting it are outlined in a new Unesco publication, "Compulsary Education in South Asia and the Pacific." Obtainable from National Distributors of UNESCO publications price: $ 1; 6/-; 300 Fr. fr.*

'SAY 999' : The nine hundred and ninety-nine categories of diseases and causes of death officially listed by medical statistics have just been reviewed and brought up to date. The aim was to improve the accuracy of health statistics and to show more precisely which ailments are most costly to the community. This revision—the seventh—of the original list was made by an international conference convened by the World Health Organization at UNESCO HOUSE, Paris.

★ **WINGS OVER THE WORLD:** *A new postage stamp featuring a pair of wings soaring over the world has now been put on sale by the U.N. Postal Administration. It pays tribute to the International Civil Aviation Organization (I.C.A.O.), a U.N. Specialized Agency that helps to set world-wide standards for aviation, reduces red tape for international air services and offers technical aid to help governments to build up their aviation services.*

CERN CHANGES: Professor F. Bloch, Director-General of the European Organization for Nuclear Research (C.E.R.N.) has resigned and will be replaced later this year by Dr. J.C. Bakker of the University of Amsterdam. C.E.R.N., which was set up through Unesco's initiative, is building an international centre for nuclear research at Geneva to house the world's most powerful instruments to explore matter and energy. Twelve nations now participate in C.E.R.N. (See UNESCO COURIER, March 1955.)

★ **WORLD CRIME PROBLEM:** *An international congress on Crime Prevention and Treatment of Delinquents will be held in Geneva this year from August 22 to September 3. Main points for discussion by the Congress are minima rules for the treatment of prisoners, recruitment and training of prison personnel, open institutions, prison work and juvenile delinquency. Governments of eighty-four countries, members of the United Nations and others, have been invited to send delegates, and representatives of the UN Specialized Agencies and of some fifty non-governmental organizations will also attend. This will be the first international meeting held since the work previously carried out by the International Penal and Penitentiary Commission was taken over by the United Nations. (See Unesco Courier—"Human Rights and the law breaker" Jan. 1955.)*

THEATRES UNDER THE TREES: This summer theatre-goers in Budapest will have a choice of twenty-five open-air theatres for their evening's entertainment. The opera, for example, will transfer its scenery and orchestra to a stage under the trees in the Zoological Gardens, where there is room for 3,500 spectators.

★ **WIPING OUT MALARIA:** *An all-out war against malaria is going on in Indonesia where a World Health Organization team, headed by experts from Greece, India and Italy, is aiding government action. Operations such as the spraying of D.D.T. inside houses and in all places where malaria-bearing mosquitos may lurk have been going on in an area with a population of some 200,000 people.*

CHERISH THE HAND : A new filmstrip which shows the need for respecting and protecting nature's resources is now being used by the International Union for the Protection of Nature in its world-wide campaign. The filmstrip entitled "Cherish the Hand that Feeds Us", was produced with UNESCO's help. It is intended for schools, clubs and youth groups, and in the Middle East where a special campaign is going on, it is being distributed along with explanatory booklets by UNESCO's Science Co-operation Office in Cairo.

★ **INTERPRETERS' SCHOOL:** *Interpreters and translators are now being trained at the Sorbonne University in Paris for work at international meetings and assemblies. Two hundred students supervised by some forty professors are attending a special two-year course. At the end of the first year, they will chose to specialize in either translation or interpretation.*

'NEW READER' LIBRARIES: The Government of Bombay State has set up a network of libraries in towns and villages where people who have just learned to read can continue their studies and increase their knowledge. More than 1,000 libraries have been opened in villages. Special libraries have been opened for the use of women and children.

★ **STUDENT FESTIVAL :** *Concerts, plays, ballet, folk dances and art exhibitions are being presented by students from 14 countries in an international cultural festival organized in Montpellier, France, by the French General Association of Students. The Festival includes concerts by university orchestras from France, Italy and the Sarre and plays staged by drama groups from Brussels. Geneva, Paris, Salamanca and Stockholm. Classical music ensembles from the universities of Mainz and Madrid contrast with jazz groups from Harvard and the Free University of Berlin.*

Letters to the Editor

Sir,

As a teacher, I sincerely applaud your magnificent publication and the work it is doing in the field of education and human betterment. The UNESCO COURIER really deserves to be known and read in every country. I have just finished reading your issue on Crime and Justice (No.10 - 1954) where you publish short biographies of "Seven Apostles of Prisoners' Rights." You might have added one extraordinary Spanish woman reformer—Concepcion Arenal—who lived from 1820 to 1893.

Despite misunderstanding, opposition and difficulties of every kind Concepcion Arenal devoted her whole life to bettering the lives of prisoners. For 30 years she visited prisons and founded an organization called "The Voice of Charity." Her book "Manual del Visitador del Pobre" (Guide for Visiting the Poor) was translated into many languages, and her work had great influence on improving the status of prisoners.

Luisa Buren de Sanguinetti.
Buenos Aires,
Argentina.

Sir,

I was very interested by an article published in the UNESCO COURIER (No. 8/9, 1954) on "Science Teaching With Odds and Ends," by Daniel Behrman. My interest was twofold: firstly, in the story as such and secondly because of the ideas it gave me for my work of equipping our schools in Morocco with science teaching materials.

I should be grateful if you would send me more detailed information (sketches, photographs, models, precise technical facts etc.) on what has been achieved in this field.

J. O. Nuss.
Chief Inspector
of Science Teaching,
Rabat, Morocco.

Sir,

By reading the UNESCO COURIER, I am able to know of conditions in many parts of the world. In order to promote closer understanding with each other, I want to correspond with the people of the world and share with them opinions and information. I shall appreciate it very much if you will give me an opportunity to have friends in foreign countries through the UNESCO COURIER.

I am a Filipino, 18 years old. My hobbies are stamp and coin collecting, singing, reading and sports.

Hospicio Bayona, Jr.
Silliman University,
Dumaguete City,
Philippines.

Sir,

On page 34 of the UNESCO COURIER (No. 10, 1954,) there are references to the "adoption" of farms by schools in the City of Birmingham. The impression given by these notes is that something new and original is being done ("success for their *venture*"), and that Birmingham schools should have credit for it. One of my non-British colleagues was extremely interested in these notes, because nothing similar had been done in his own country; but he was equally surprised to be told that "farm adoption" has been practised by many town schools in England for at least 25 years.

The "adoption" idea is good; but in England it is *not* new, and the Birmingham schools might even feel faintly embarrassed at wearing the mantle of originality which the COURIER has cast upon them.

C.R.P. Gillett.
Unesco Institute
for Education,
Hamburg, Germany.

Sir,

My husband recently sent our copy of the UNESCO COURIER to the Science Master at the grammar school in England from which he has now retired. The following extract from the reply of his colleague will, perhaps, interest you:

"Thanks for the UNESCO COURIER. I am most impressed by it; quite the best, and most informative account of the present position of Atomic Energy I have seen. I am trying to persuade the Librarian to buy a copy for all the VI Form—one each I mean. What a boon it can prove, if we only have enough sense to use it for peaceful purposes."

Mrs. J. A. Thorne.
Paris, France.

Sir,

Would it not be a good idea, seeing that the UNESCO COURIER is now smaller in page size, to plan to supply hard board covers to keep them in:

1. So that schools and homes can keep the issues as they come out. This prevents them being thrown around and torn, and gives the home or the school a definite place to put the issues.
2. So that at the end of a suitable period, say 6 months, they may be bound and form a permanent book.
   In this case purchasers of the binder covers would be supplied with an index for the period.

I could visualise that these books would be a valuable addition to any library, but most particularly in schools. It might also help to increase the circulation, once people see what a wonderful book they make.

Fred Massey.
Fair Vale, N.B.
Canada.

Sir,

The UNESCO COURIER is greatly appreciated here and it is unanimously considered the most interesting of all United Nations publications. It is read by large numbers of teachers, by persons interested in science and culture and by many members of the general public.

We find that its international outlook, its treatment of important world problems and specially its directness appeal to the readers and arouse their interest in the ideals and goals for which Unesco stands.

Maria Emma Castro.
Buenos Aires,
Argentina.

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